Comparing the Effectiveness of Various Handwriting Styles

Handwriting?
Handwriting?
Handwriting?

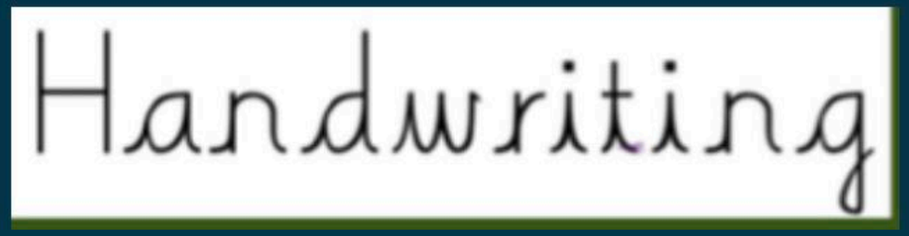
NOTE. Handwriting terms are NOT (yet?) internationally standardized.

For example: in the USA, the words "script" and "cursive" are both names for **this:**

But in many other English-speaking countries (and some non-English-speaking countries), "script" is a name for **this:**

and "cursive" is very often a name for both

this *and* **this:**



Whatever our disagreements on handwriting, we can agree that much current teaching is counterproductive (with regard to both the desired letter-model and the process).

Different professionals will note differing issues in the next slides. video of 15 seconds in a handwriting lesson (posted publicly by the instructor, a dyslexia specialist.) Most of us will have some concerns.

As you watch the video, what are your own thoughts about the model and/or process that have been taught/ rewarded in just 15 seconds? For instance: will this be a realistic stroke-sequence for the letter, in any model, when handwriting is put to use? Is the student learning to write, learning a useful (or not-useful) motor sequence for writing letters and forming them into words, learning to disregard motor sequencing … or what else?

Video from the public Twitter feed of @SalFlores10, a dyslexia specialist on the educational agency leadership staff on the the McAllen (Texas) Independent School District: @McAllenISD: online at https://mobile.twitter.com/salflores10/status/1451247449935384576?s=21

Click to play

Thoughts?

What would you do differently? (or not?)

Could less essential/inessential features of a model be influencing the teacher's and/or student's perceptions of handwriting?

Click to play

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What would you do differently? (or not?)

Could less essential/inessential features of a model be influencing the teacher's and/or student's perceptions of handwriting?

Whatever our differences, we can unite in asking:

Today, what forms of our handwriting are

REALISTIC?

RETAINABLE?

RESEARCH-SUPPORTED?

REALISM ... ?

Let's start with a look at our 21st-century handwriting. When we write by hand, what style do we really use?

In 2012, a survey was taken of handwriting teachers at a conference hosted by Zaner-Bloser (a publisher which uses a conventional North American instructional sequence : print —> cursive).

When asked how they themselves wrote, fewer than half reported following either of those conventional forms. More than half described themselves as writing a combination of both forms. (Note that, at the time, using a combination of forms was not acknowledged, let alone approved, by the organization hosting the conference — and is still ignored or actively disapproved by almost all North American handwriting curriculum publishers.)

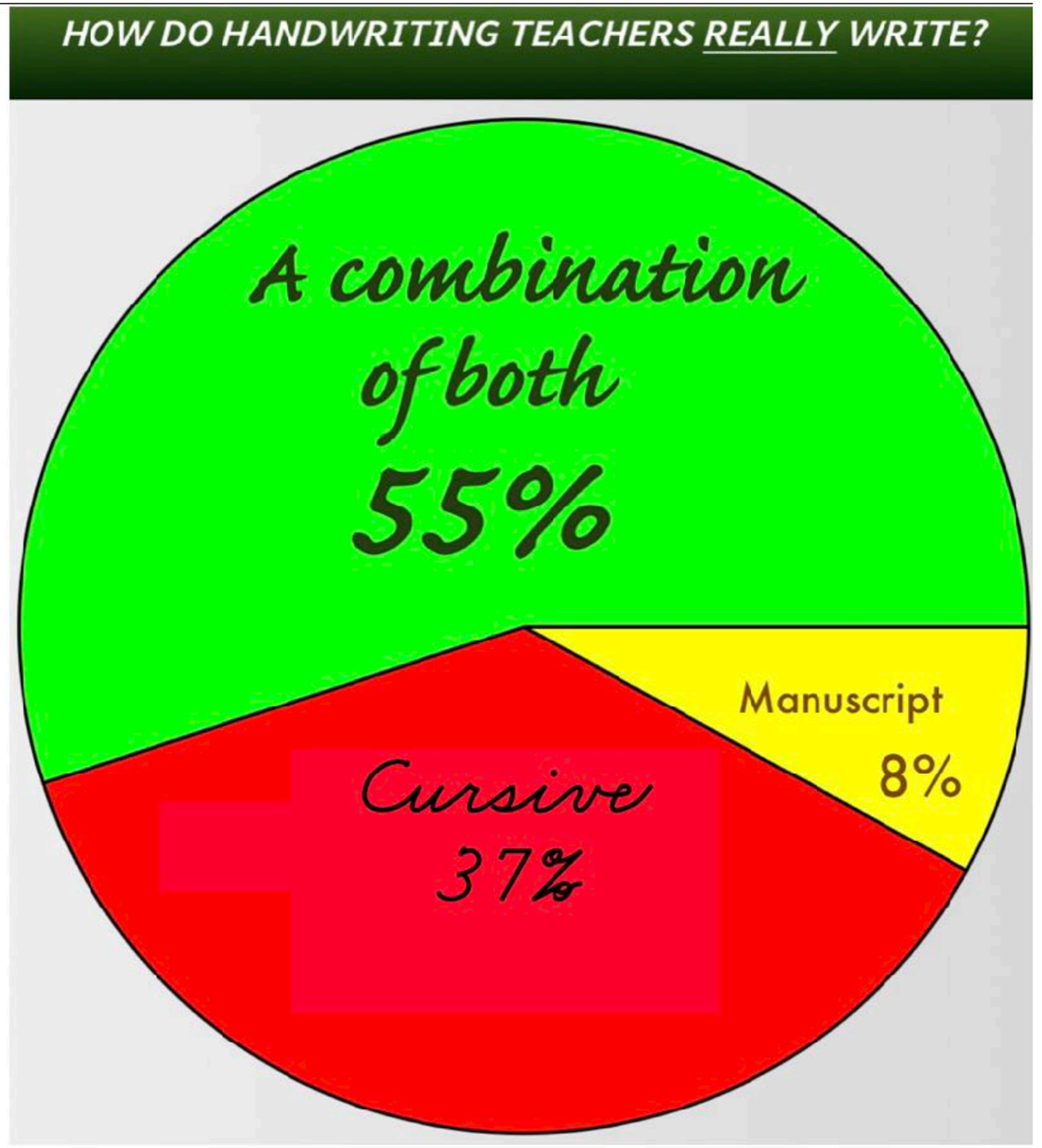

chart by Kate Gladstone, using data from Zaner-Bloser published survey results retrieved from ***https://media.zaner-bloser.com/hw21summit/public/H2937N_post_event_stats.pdf***

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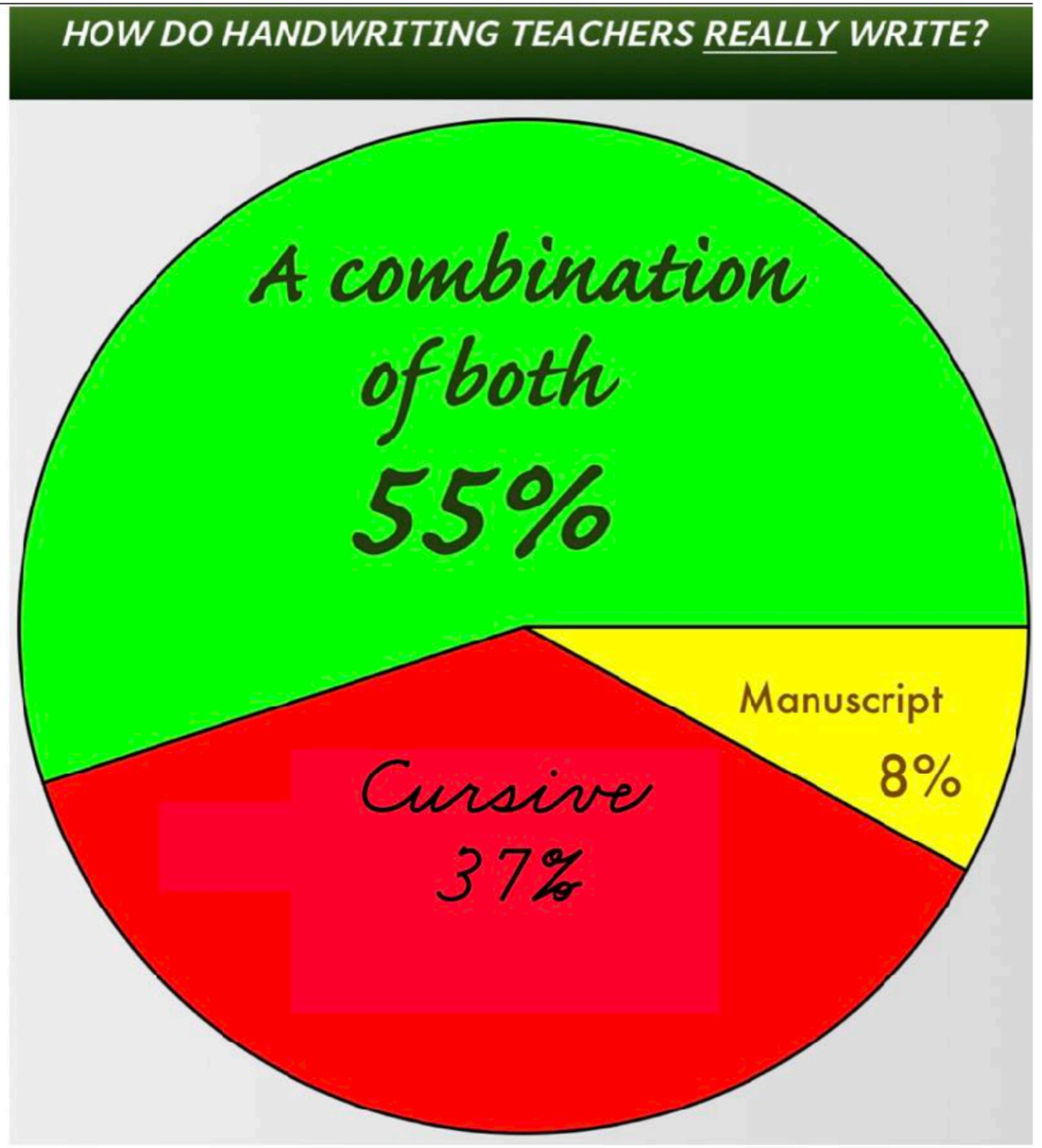


chart by Kate Gladstone, using data from Zaner-Bloser published survey results retrieved from **https://media.zaner-bloser.com/hw21summit/public/H2937N_post_event_stats.pdf**

Observations like these are not new.

In 1900, Yale psychologist Cloyd McAllister was researching the various movements used in writing. As he made contact with professional handwriting instructors, he observed:

"The statement that 'every word should be finished before removing the pen' is often printed in bold type in books on writing and insisted upon by most teachers of writing. An examination of the writing of these persons, however, will show that they do not follow this principle."

For instance, when one handwriting teacher wrote that "the joining of letters" was the only way to "secure rapidity and continuity in the composition of a word," McAllister counted the pen-lifts between letters in just 2 consecutive sentences [63 words] of that handwritten letter — and found 28.

NOTE: Though McAllister does not provide a photo of the original letter, he does provide the full text of the sentences he examined, indicating wherever the pen was lifted within a word.

- ***Pen-lifts occurred in 28 of the 63 words examined (almost 45%), sometimes 2 or 3 times within a word.***
- ***Almost all of the pen-lifts occurred in moving from the exit of a letter into a following letter's curved top (a/c/d/g/o/q). E.g., the word "leading" in the sample used three pen-lifts.***

McAllister, Cloyd N. (190) Researches on Movements Used in Writing,' in Studies from Yale Psychological Laboratory, VIII (Yale University, 1900), page 61: online at https://ia800203.us.archive.org/16/items/studiesfromyal6to10yaleuoft/studiesfromyal6to10yaleuoft.pdf

HOW REALISTIC ARE CERTAIN CURSIVE EXPECTATIONS?

Write these words in cursive: using whatever you regard as "your best cursive / the best cursive."

part port past post

Did you notice any uncertainty/other difficulty at some point?
Did particular letters/joins "feel like trouble"?

Did you use (or think about using) any kind of "workaround":

such as lifting the pen/cil within a word, and/or

replacing a cursive letterform with a printed one)?

Were there letters/joins that you'd normally make differently (or joins that you'd normally skip),

but you didn't do that, this time

because you were being told to produce "best cursive"?

Write the following sentence, trying to join as many letters as practically possible for you within each word.

I do not know where famous doctors acquired illegibly perplexing handwriting — overexertion, prescriptions, groundbreaking specializations, underonjectivity?

What did you notice about your handwriting as you continued?

For example, did joining letters become more difficult as the words got longer?

Did certain letters or joins or letter-combinations (or even some parts of letters) appear to "stop working" at some point?

Did you make other unexpected and/or interesting observations?

This exercise examines the effects of changing just <u>one</u> variable in a handwriting. For this exercise, the variable we'll be changing is how the letter <u>t</u> is crossed.

The next slide will contain a sentence to copy. You will be copying that sentence twice, but doing just ONE thing differently each time. Other than changing that one variable, do not try to change your usual writing.

The first time you write the sentence, cross every <u>t</u> in the "correct" conventional cursive way, whether you normally do so or not.

In other words: the first time, wait till the end of the word before going back to finish (cross) any t's in that word.

EXAMPLE:

The second time you write the sentence, cross every <u>t</u> before going on to the next letter in the word: again, whether you normally do so or not.

In other words: the second time, make sure that you finish (cross) every t as soon as you write it.

EXAMPLE:

The sentence:

Stanley the tyrannosaurus thankfully tried twenty-two tasty, tiny tomatoes.

When you finish the sentence the FIRST time, please click the Zoom program's "Raise hand" button to show you have finished the first half of the exercise.

When you finish it the SECOND time, please "lower your hand" (by clicking the "Raise hand" button a second time) to show you have finished the second half of the exercise.

TIME TO THINK:

What happened to your speed and/or legibility,
under each of the two t-crossing conditions?
Did one condition feel more effortful or laborious than the other?
If so: which one, and why?
How did it feel, to suddenly have to change one part of
an established motor pattern for handwriting?
Did changing one part of your handwriting
change some other part(s) of your handwriting?

As you think over all 3 exercises:

Do your results and observations affect how you think about some implicit assumptions (and/or explicit claims) that are "baked into" many handwriting models and curricula?

Things to think about:

- *When a cursive model assumes/requires that“all cursive letters always start in the same place,” is this a realistically helpful or accurate assumption for all letters in all cursive words?*
- *When a cursive model assumes that “all cursive letters join,” is this always a realistically helpful assumption or practice?*
- *When a cursive model assumes that “keeping the pen on the paper is always faster than letting it leave the paper,” is this always true? Is it realistically helpful to assume or teach that belief?*

RETENTION? ...

Even where cursive is taught (by teachers who know how to read and write it), students often forget it completely within a few years of instruction.

The material below is from a Canadian investigative report:

"Among students, longhand is a lost art" —

TORONTO STAR, June 23, 2013: https://www.thestar.com/yourtoronto/education/2013/06/23/among_students_longhand_is_a_lost_art.html

For Christien Veillex, cursive writing brings up memories of elementary school, writing out lines and lines of squiggly As, Bs, and Cs in an attempt to make them flow.

Today, the 18-year-old student at Danforth Collegiate and Technical Institute remembers very little of what he learned, except for the letters that make up his own name.

HOW OFTEN ARE CONVENTIONAL MODELS RETAINED?
AND WHY AREN'T THEY?

Handwriting teacher Betty Duvall (1985) met with a group of high school teachers to evaluate the handwritings of 756 eleventh-graders in Great Falls, Montana. Would the students' handwriting reflect what they'd learned? (Zaner-Bloser manuscript in Grades 1 & 2, Zaner-Bloser cursive in Grade 3) Or did the handwriting curriculum fail to have a lasting impact?

The evaluators found that only 13% of the students (< 1 in 7) still applied what had been taught.

Literally NONE of the students who"printed" still used the taught manuscript form, and only 13% of the students (including those who joined any letters at all) still used the taught cursive form.

Duvall, B. (1985).Evaluation of eleventh grade students' writing supports teaching italic handwriting. (ERIC Document Reproduction Services, No. ED 263 608):online at https://web.archive.org/web/20200808014008/https://eric.ed.gov/?id=ED263608

Among the 87% whose performance ignored the taught models, a very large percentage (46+% of the total student population) shared specific handwriting features — such that the writing of students in this group closely resembled either of two specific types of handwriting model that these students had NEVER been taught.

Duvall points out that this category of writer outnumbered (2 1/2 times) those for whom their handwriting training had actually had the intended lasting impact.

Duvall suggests that the unexpected writing-style choices of this very large group with its two subgroups (just under half of the students evaluated, just over half of the 87% who ignored/did not retain either taught model) indicates that they are trying to avoid or remove the problematic design features that she identifies as characterizing conventional manuscript or cursive styles.

Duvall, B. (1985).Evaluation of eleventh grade students' writing supports teaching italic handwriting. (ERIC Document Reproduction Services, No. ED 263 608):online at https://web.archive.org/web/20200808014008/https://eric.ed.gov/?id=ED263608

Note that the taxonomy devoted by Duvall and her evaluators does not (and cannot) cover absolutely all handwriting forms. It can, and likely should, be expanded and otherwise refined for international use. (E.g., it would definitely need adaptations for non-roman-alphabet writing). However, her taxonomy provides a workable way to categorize the various handwriting models (and related forms of everyday handwriting) most often observed in North America.

*"Samples were judged as **cursive** if letters were joined, small ascender and descender letters had loops, small letters were elliptically shaped, and the writing appeared to be slanted."*

*"Samples were judged as **straight cursive** if letters were joined, small ascender and descender letters had loops, small letters were elliptical in shape, and the writing had little or no slant."*

*"Samples were judged as **italic cursive** if some but not all letters were joined, small ascender and descender letters did not have loops, small letters were elliptically shaped, and the writing had little or no slant."*

*"Samples were judged as **roundy cursive** if some but not all letters were joined, small letters were round in shape, and the writing had little or no slant. Roundy cursive was to have the appearance of joined manuscript."*

*"Samples were judged as **manuscript** if the writing had no slant, no letters were joined, and the small letters were round in appearance."*

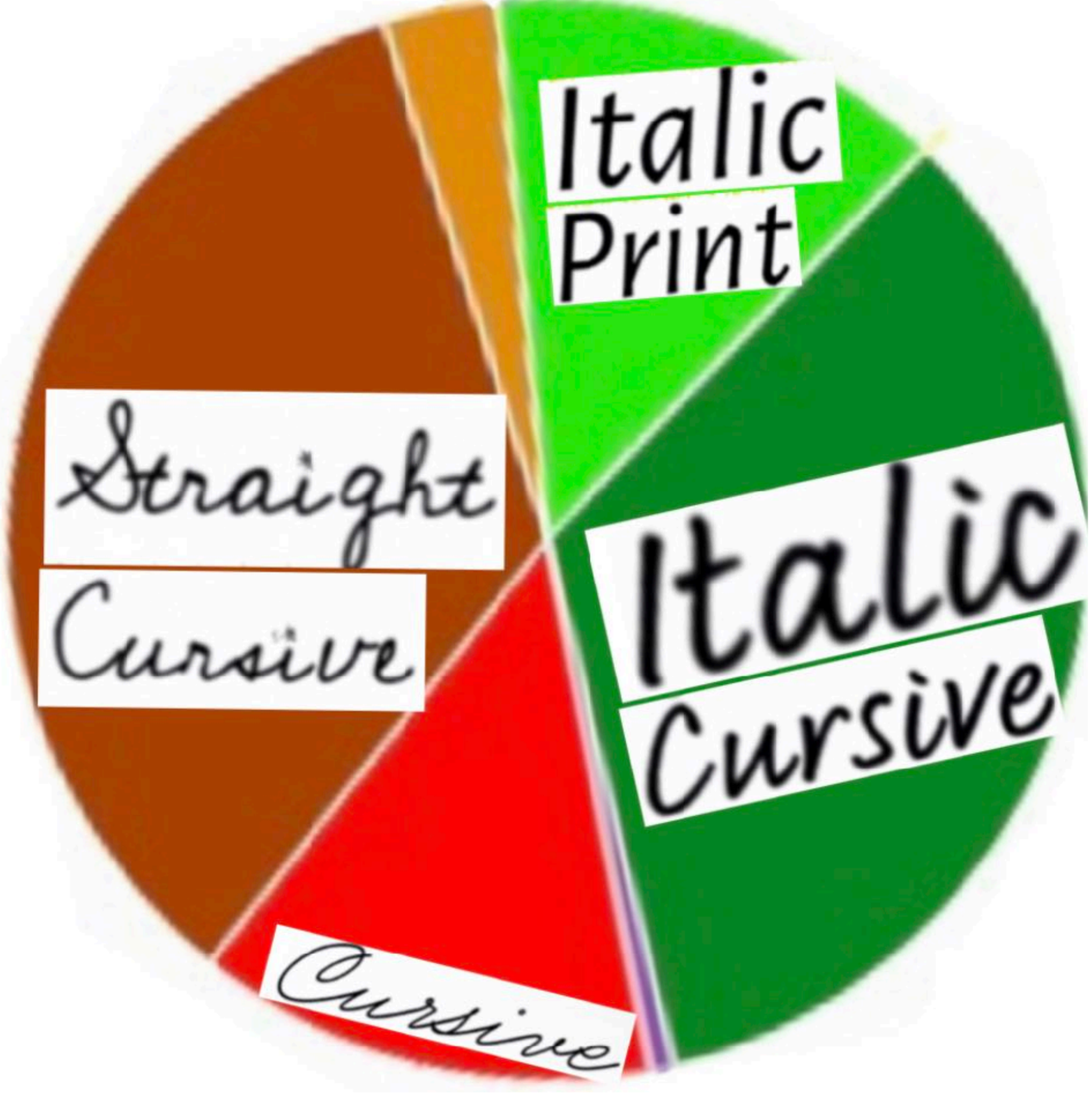
*"Samples were judged as **italic print** if the writing had little or no slant, no letters were joined, and the small letters were elliptical in appearance."*

*"Samples were judged as **backhand** if the writing slanted to the left of vertical, regardless of any other characteristics."*

*"Samples were judged as **block print** if written in all capital letters."*

Duvall, B. (1985).Evaluation of eleventh grade students' writing supports teaching italic handwriting. (ERIC Document Reproduction Services No. ED 263 608): online at https://web.archive.org/web/20200808014008/https://eric.ed.gov/?id=ED263608

Cursive	13.36 %
Straight Cursive	33.33 %
Italic Cursive	32.94 %
Roundy Cursive	3.31 %
Manuscript	0.00 %
Italic Print	13.36 %
Backhand	0.02 %
BLOCK PRINT	0.66 %



Color-coded percentage chart and pie-chart created by K. Gladstone from Duvall's 1985 data.

What kind of handwriting model is most REALISTIC and RETAINABLE?
What will help our handwriting survive?

Some claim "the answer" is conventional cursive.

The quick brown fox jumps over the lazy dog.
D'NEALIAN
The quick brown fox jumps over the lazy dog
ZANER-BLOSER
The quick brown fox jumps over the lazy dog.
HANDWRITING WITHOUT TEARS

Portez ce vieux whisky au juge blond qui fume.
PRE-2013 FRENCH SCHOOL MODEL
Portez ce vieux whisky au juge blond qui fume.
POST-2013 FRENCH SCHOOL MODEL "ÉCRITURE A"

images of four United States handwriting models: used courtesy of Jonathan Dubay (Getty-Dubay Handwriting/ HandwritingSuccess.com)

image after Barchowsky Fluent Handwriting model : handwriting font designed by the late Nan Barchowsky:, creator of Barchowsky Fluent Handwriting/ BFHhandwriting.com)

image after pre-2013 French school handwriting model (handwriting font used courtesy of fiche-maternelle.com, a French-language preschool resource si

images after post-2013 French school handwriting fonts (courtesy of French Ministry of Education web-site eduscol.fr.)

Others point to models which embody the features of "mixed/hybrid" styles.

The quick brown fox jumps over the lazy dog.
GETTY-DUBAY ITALIC
The quick brown fox jumps over the lazy dog.
BARCHOWSKY FLUENT HAND
Portez ce vieux whisky au juge blond qui fume.
POST-2013 FRENCH SCHOOL MODEL "ÉCRITURE B"

WHAT DOES THE RESEARCH SUPPORT? ...

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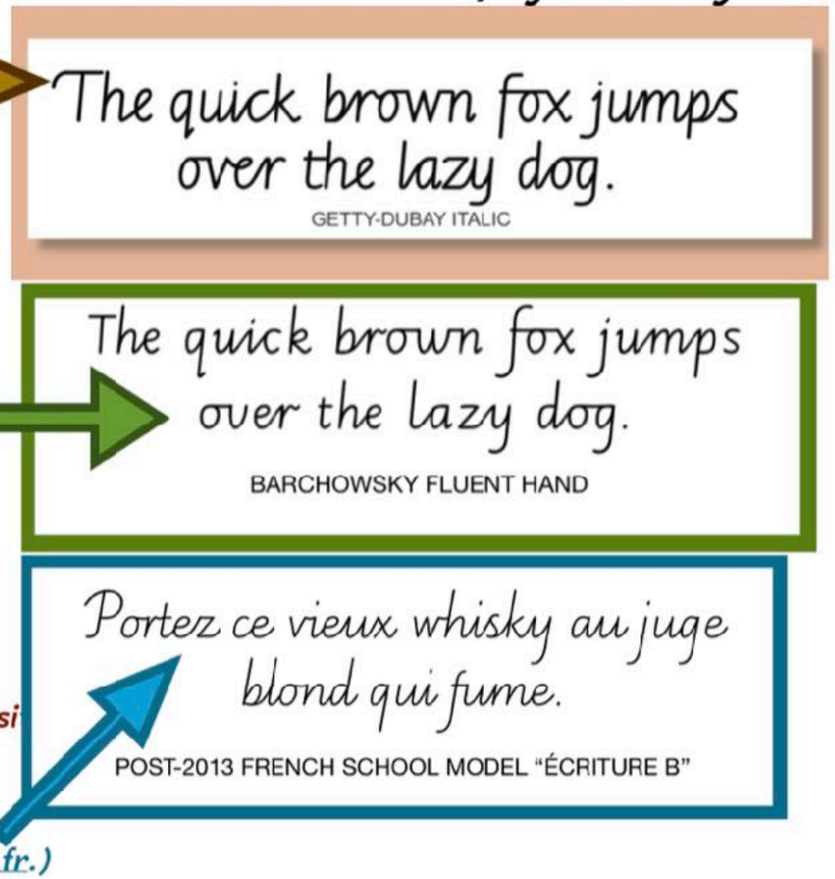
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WHAT DOES THE RESEARCH SUPPORT? ...

Handwriting Research on Speed and Legibility

Among 600 students in grades 4 through 9:
"The handwriting of students who used a mixed style was faster than the handwriting of the students who used either manuscript or cursive exclusively."

When the handwritings were evaluated for legibility, the most legible writings were in the "mixed" category.

"Mixed—mostly cursive" were the most legible writings, with other groups ("manuscript / cursive / mixed — mostly manuscript") approximately equaling one another in legibility.

Steve Graham, Virginia Berninger, and Naomi Weintraub (1996). The Relation between Handwriting Style and Speed and Legibility. Journal of Educational Research, 91(5), 290-296: online at http://www.jstor.org/stable/pdfplus/27542168.pdf

Handwriting Research on Speed and Legibility

A piece of bi-national research (France and Canada) reported on two studies.

- The first was a study of 236 fourth- and fifth-graders.
127 had been taught **print-then-cursive**, from grade 1.
109 had been taught *cursive-only*, also from grade 1.

- The second was a study of 96 fourth- and fifth-graders,.
48 had been taught **print-then-cursive**, from grade 1.
48 had been taught *cursive-only*, also from grade 1.

In both programs, a high percentage of the children (about 30% of the cursive-only group, and about 40% of the print-then-cursive group), were producing what the researchers described as "mixed" scripts — although no such style had been part of their handwriting instruction. By grade 5, these writers tended to be the fastest.

Cursive writers averaged slower than "mixed" writers or print-writers. Though cursive writers in this study wrote more legibly than print-writers, mixed writers wrote as legibly as cursive writers.

The researchers concluded:

- *"Cursive handwriting was the slower style, whereas mixed handwriting seemed to be more efficient"*
- *"Whatever the handwriting style taught initially, children grow more and more distant from this style and use more and more mixed handwriting. These changes in handwriting style might reflect a search for more efficiency and fluency."*

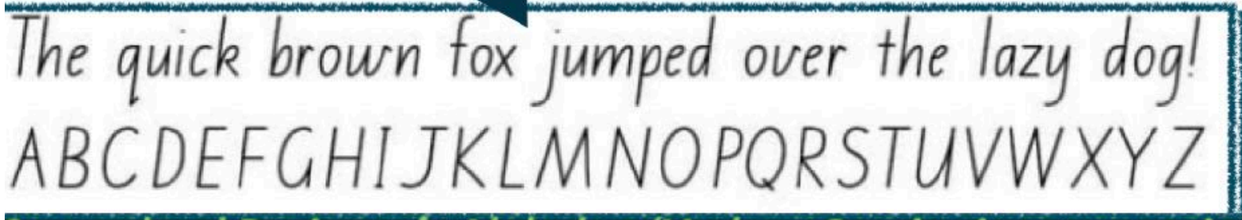
Bara, F. & Morin, M-F. (2013) Does the Handwriting Style Learned in First Grade Determine the Style Used in the Fourth and Fifth Grades, and Influence Handwriting Speed & Quality? Psychology in Schools; 50 (6), 601-617: on-line at https://lectureecriture.ca/wp-content/uploads/2014/08/Bara-et-Morin-2013.pdf

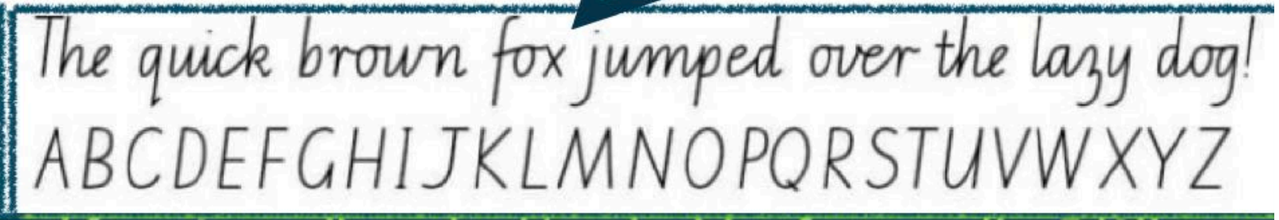
Handwriting Research on Speed and Legibility

Ziviani J. and Elkins J. (1984) An evaluation of handwriting performance. Educational Review. 36(3): 249–61. online: https://doi.org/10.1080/0013191840360304

Ziviani, J. and Watson-Will, A. Ziviani, J., & Watson-Will, A. (1998). Writing speed and legibility of 7–14-year-old school students using modern cursive script. Australian Occupational Therapy Journal. 45(2), 59-64. online: https://doi.org/10.1111/j.1440-1630.1998.tb00783.x

Handwriting performance of 372 children ages 7-14 in Queensland (Australia) was evaluated in 1998, fourteen years after this Australian state had replaced a previous print -> *cursive* curriculum with a curriculum designed to keep the letter forms and slope highly consistent as writers build from an unjoined "beginner's alphabet" into a semi-joined handwriting named "modern cursive."





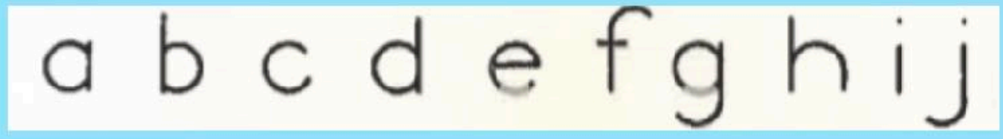
Queensland Beginner's Alphabet/Modern Cursive images retrieved from Australian school handwriting font supplier EdAlive at https://www.edalive.com/asfp-qld-handwriting-font/

Results of the 1998 study were compared with results of a similar (1984) study:

Handwriting Research on Speed and Legibility

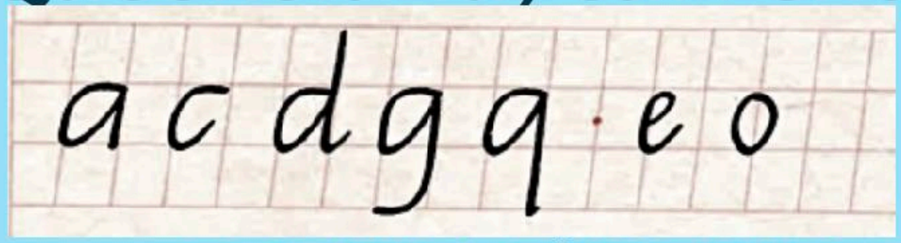
COMPARISON (with model names) OF PRE-1984 AND CURRENT QUEENSLAND HANDWRITING MODELS

Queensland, pre-1984

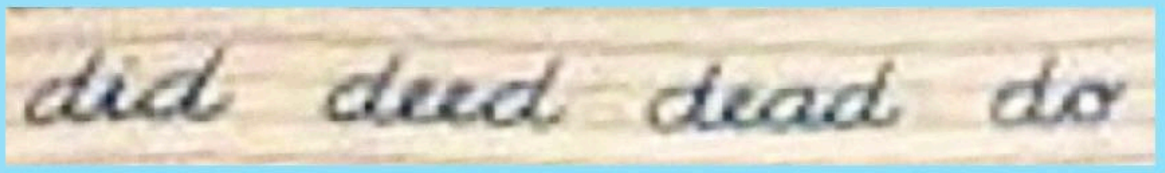


official name: BALL-AND-STICK

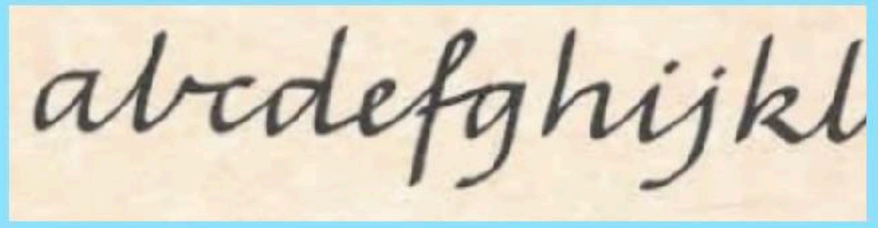
Queensland, current



official name: BEGINNERS' ALPHABET



official name: CURSIVE



official name: MODERN CURSIVE

Queensland handwriting images courtesy of Barbara Nichol (designer of the current Queensland handwriting program) at https://www.penmanship.com.au

Handwriting Research on Speed and Legibility

RESULTS: ***In the 1998 study, older students did better (in speed and legibility) than the previous same-aged cohort of Queensland students whose handwriting performance had been similarly evaluated in 1984. Younger children in the 1998 study performed about equally with the previous (1984) same-aged cohort. (Speed differences in this study were reported between the average performance of girls and boys, and between the averages for children of differing ages, but were not reported between writers who used cursive versus printing.)***

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***NOTE**: Professional discussion of Ziviani's research has at times been affected by terminology issues and/or other sources of error. E.g., one influential publisher of handwriting products and information represents Ziviani (1998) as "some research [which] shows that cursive is speedier than printing":*

Source: https://www.zaner-bloser.com/products/pdfs/Handwriting_in_the_Middle_Years.pdf (page 7).

Screenshots of that source's page 7 description and page 12 bibliographic entry for Ziviani (1998) —

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FACT: The first published textbooks on handwriting used a semi-joined style, with letters shaped the same whether joined or not. This page is from the very first: produced in 1522.

do cioe
aa ab ac ad ae af ag ah ai ak al am an
ao ap aq ar as aſ at au ax ay az
Il medeſmo farai con d i k l m n u.
Le ligature poi de c f s ſ t ſonno
le infra=
ſcritte
cf, fa ff fi fm fn fo fr fu fy,
ſt ſt
ſf ſi ſs ſt, ta te ti tm tn to tq tr tt tu
tx ty
Con le reſtanti littere de lo Alphabeto, che
ſono, b e g h o p q r x y z 3
non ſi deue ligar mai lra
alcuna ſequente

This book (printed in Italy) called its subject-matter "corsiva."

Other books, which followed soon after, used related/equivalent terms for this form of writing.

Today, the most widely accepted English name for this type of handwriting is "italic."

Illustrations from Day, Lewis F., Penmanship of the Sixteenth, Seventeenth, and Eighteenth Centuries: A Series of Typical Examples from English and Foreign Writing Books. (1911) London: B. T. Batsford. 236 pages; online at https://archive.org/details/in.ernet.dli.2015.214154/

FACT: The first published textbooks on handwriting used a semi-joined style, with letters shaped the same whether joined or not. This page is from the very first: produced in 1522.

do cioe
aa ab ac ad ae af ag ah ai ak al am an
ao ap aq ar as aſ at au ax ay az
Il medeſmo farai con d i k l m n u.
Le ligature poi de c f s ſ t ſonno
le infra=
ſcritte
cf, ſa ſſ ſi ſm ſn ſo ſr ſu ſy,
ſt ſt
ſt ſſ ſs ſt, ta te ti tm tn to tq tr tt tu
tx ty
Con le reſtanti littere de lo Alphabeto, che
ſono, b e g h o p q r x y z 3
non ſi deue ligar mai lra
alcuna ſequente

This book (printed in Italy) called its subject-matter "corsiva."

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Later textbooks complicated things:

1522

ao ioe

aa ab ac ad ae' af ag ah ai ak al am an

ao ap aq ar as aſ at au ax ay az

Il medeſmo farai con d i k l m n u.

Le ligature' poi de' c f s ſ t ſonno

le' infra=

ſcritte

cꝛ, ſa ſſ ſi ſm ſn ſo ſr ſu ſy,

ſt ſt

ſt ſl ſs ſt, ta te' ti tm tn to tq tr tt tu

tx ty

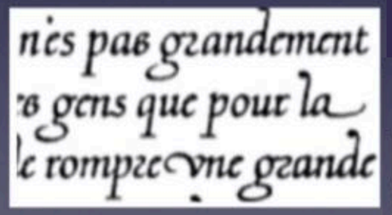
Con le reſtanti littere' de'lo Alphabeto, che'

ſono, b e' g h o p q r x y z 3

non ſi deue' ligar mai ſrá

alcuna ſeguente'

1591

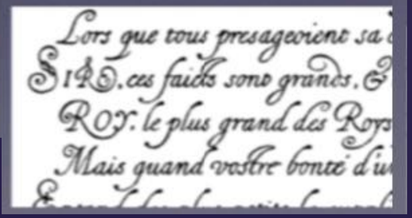


niés pas grandement
'o gens que pour la
le rompre vne grande

1608

ous les plus grands bie
ndition en la vie hum

1733



Lors que tous presageoient sa
S14D. ces faicts sont grandes. &
ROY. le plus grand des Roys
Mais quand vostre bonté d'u

1743

ſhuijkklllmnnoppqrsſtu

E F G H I J K L M

Q R S T U W X Y Z

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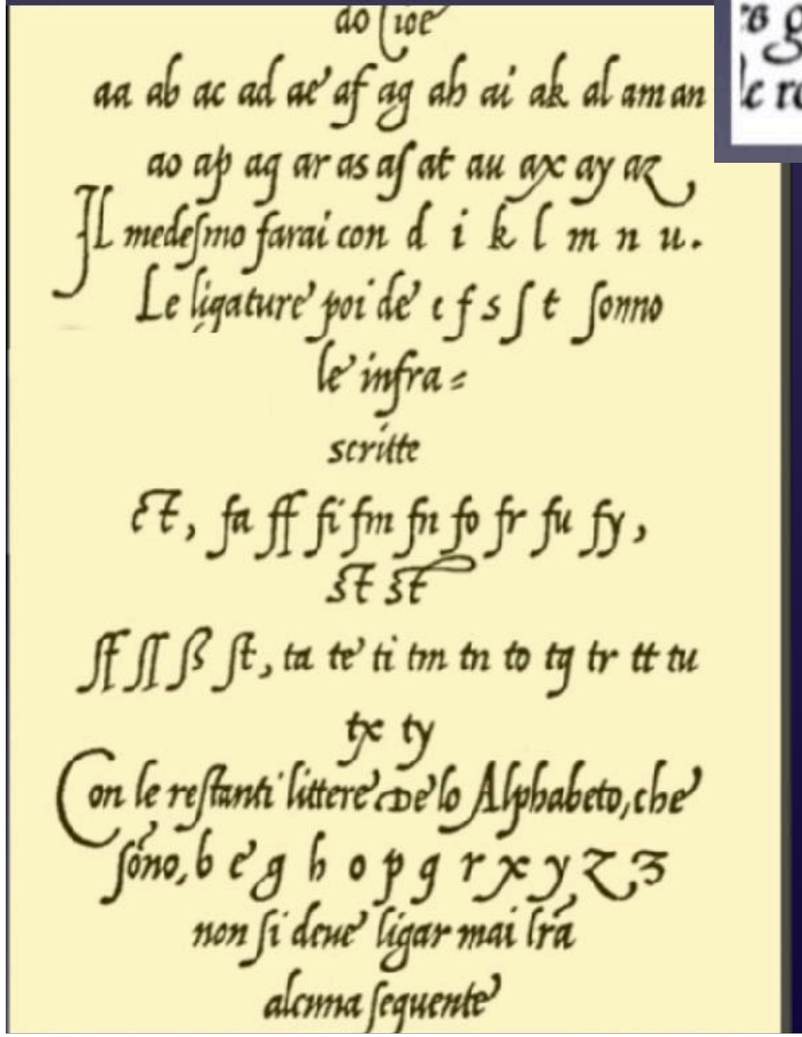
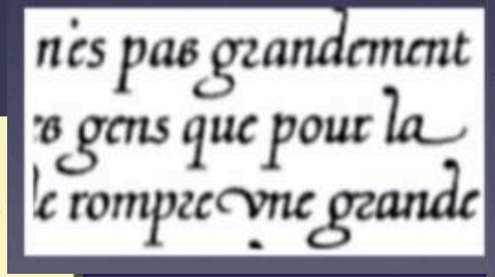
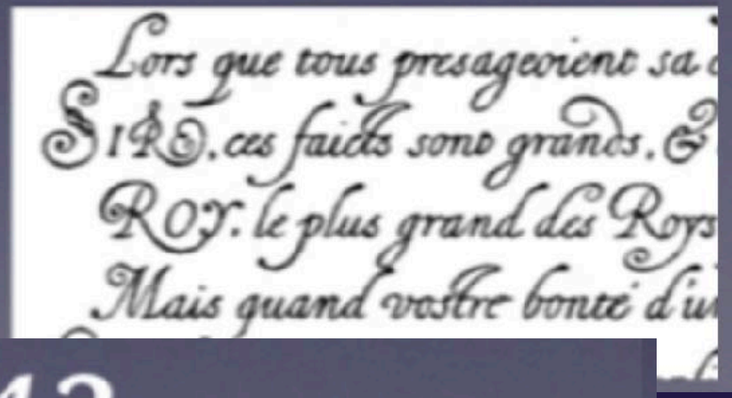

aa ab ac ad ae af ag ah ai ak al am an
ao ap ag ar as af at au ax ay az
Il medesmo farai con d i k l m n u.
Le ligature poi de c f s ſ t sonno
le infra =
scritte
ct, fa ff fi fm fn fo fr fu fy,
ſt ſt
ſſ ſi ſs ſt, ta te ti tm tn to tg tr tt tu
tx ty
Con le restanti littere de lo Alphabeto, che
sono, b e g h o p g r x y z 3
non si deue ligar mai ſrá
alcuna seguente

1591

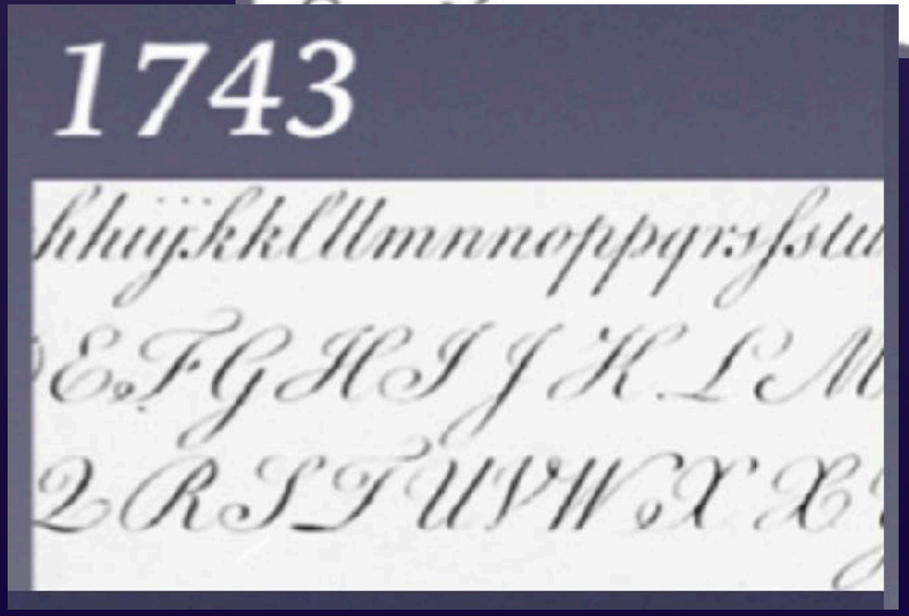


1608

1733



1743



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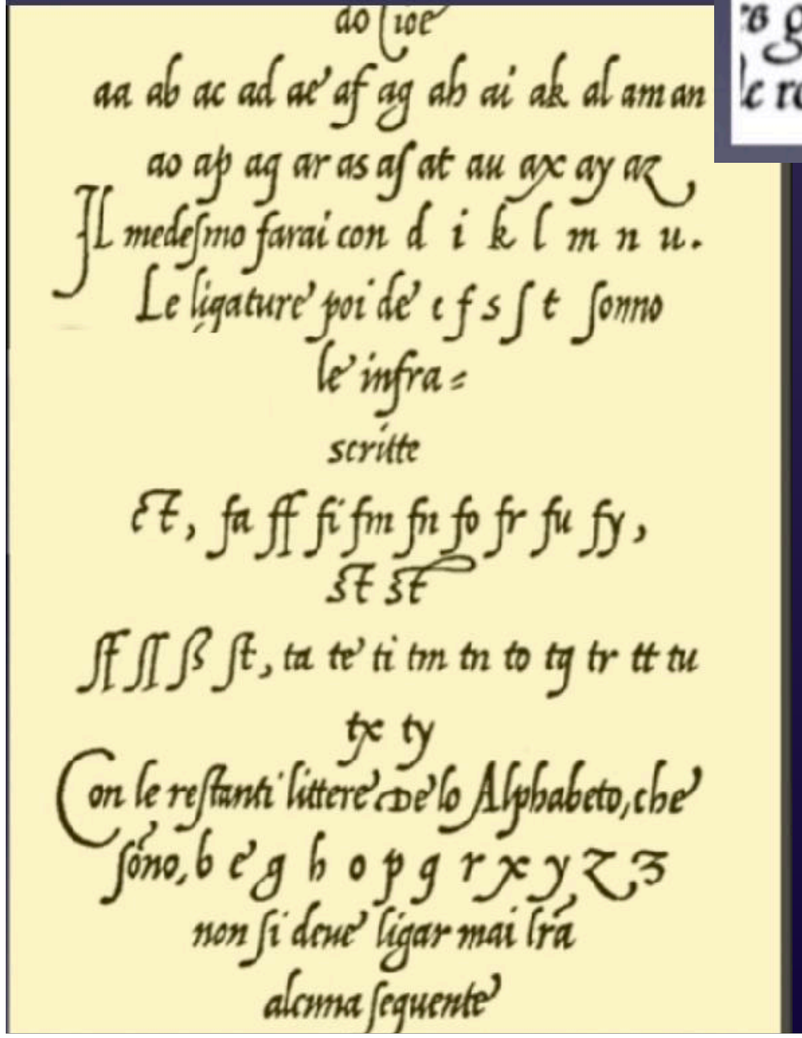
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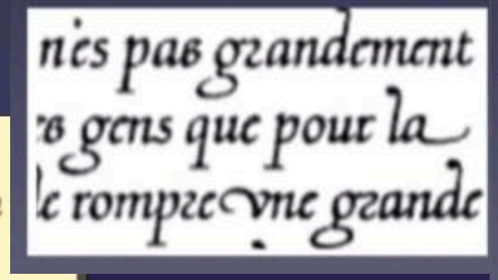

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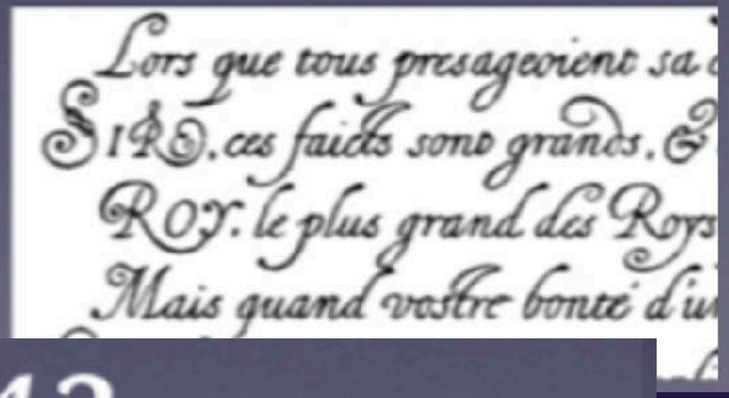

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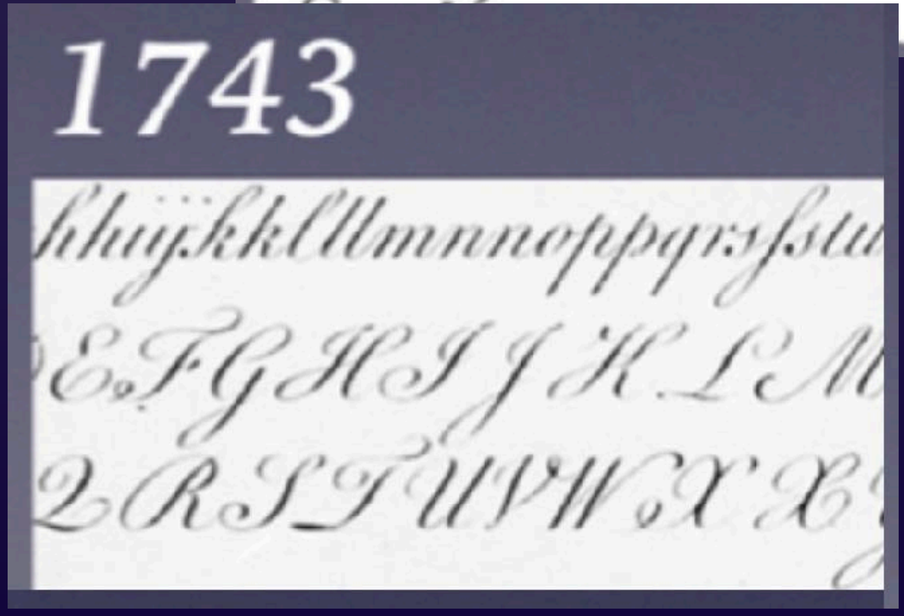

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“But … who teaches or learns a 500-year-old handwriting?”

That’s a reasonable question. According to Jonathan Dubay, head of HandwritingSuccess.com (a modern-day italic handwriting curriculum/resources publisher):

“Without getting into too many details, on handwritingsuccess.com we have conservatively (but roughly) calculated the number of italic learners to be in the hundreds of thousands over the [company’s] 40-year history. Assuming that all books that have been sold have been put to use (a big assumption), the number is roughly ¾ of a million learners of italic handwriting and calligraphy over 40 years. Right now, about 15% of sales are international.”

Let’s assume, VERY conservatively, that only 50% of these books were ever put to use. That would still mean roughly 375,000 learners over 4 decades: worth researching. (And Handwriting Success isn’t the only, or the oldest, italic firm in the USA or elsewhere.) So, let’s look at italic research over the decades …

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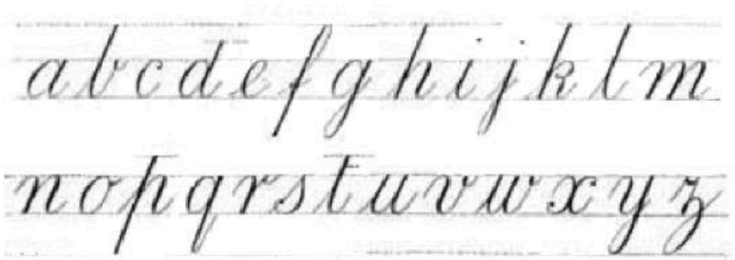
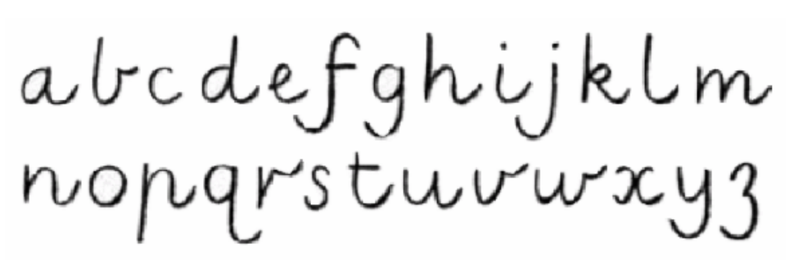
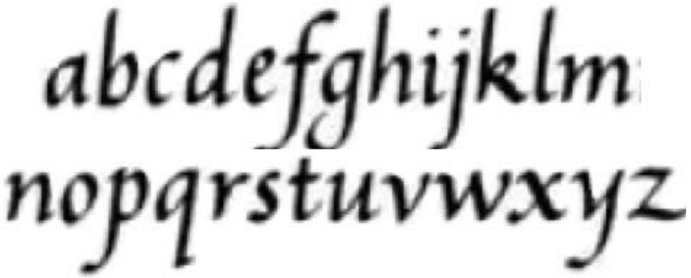
Comparative Research on Italic versus Conventional Forms

UK school inspector Percy Wood (1952) evaluated the handwriting speed of 25,000 students (ages 6 - 19) from 23 schools, by having them copy a sentence for 3 minutes at their usual writing speed, then 3 minutes at their fastest possible speed. Students had each been taught one of three styles, identified by Wood as "school copperplate," "Marion Richardson," and "italic."







[Images of named styles from Sassoon, R. (1999), Handwriting of the Twentieth Century. Bristol (UK), Intellect Books. 216 pages.]

Data reported by Wood (next slide) were on the "fastest copying" task only, and include:

- ***the mean speeds of writers between ages 6 - 10,***
- ***the slowest speeds of writers aged 10 and 14,***
- ***and the fastest speed of writers aged 13.***

(Present-day replication would mean more comprehensive data and reporting.)

Wood, P. (1952)."Reviving the Second R." The Schoolmaster (Journal of the National Union of Teachers) . 167(2,373): 110–111. online: http://handwriting.wpengine.com/wp-content/uploads/2018/11/Percy-Wood-REVIVING-THE-SECOND-R.pdf

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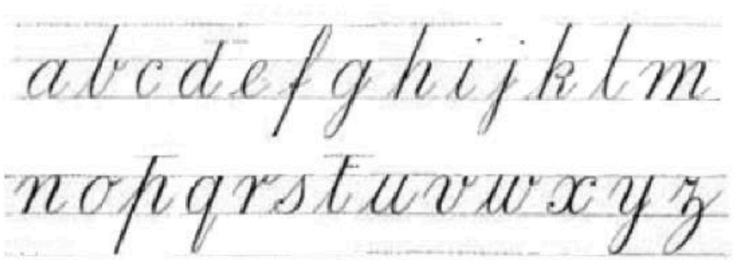

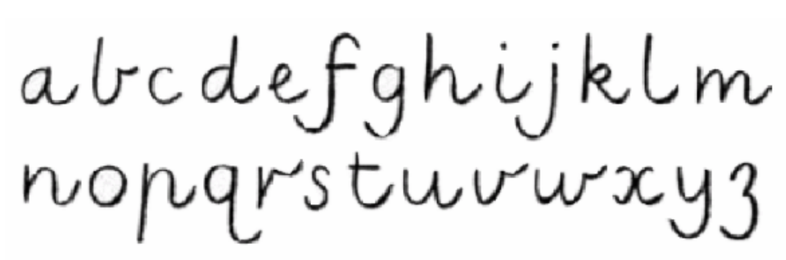

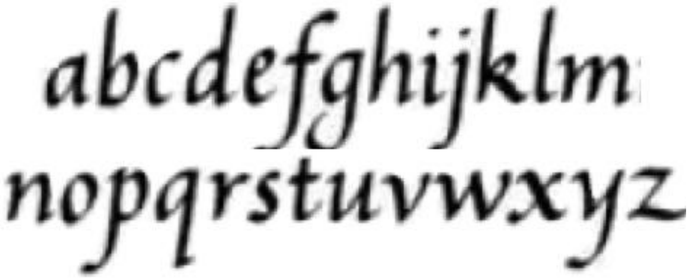

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[Table formatted by K.Gladstone from narrative data in Wood (1952), page 111]

age	SPEEDS IN LETTERS PER MINUTE (LPM) ON THE "FASTEST POSSIBLE" SENTENCE COPYING TASK		
	italic	Marion Richardson	copperplate
6 - 7	MEAN: 33	MEAN: 16	[no users of this style reported in this group]
8 -9	MEAN: 54	MEAN: 44	MEAN: 25
10 -11	MEAN: 84 SLOWEST: 52	MEAN: 75 SLOWEST: 40	MEAN: 45 SLOWEST: 32
13	FASTEST: 144	[no users of this style reported in this group]	FASTEST: 120
14 & up	SLOWEST: 90	[no users of this style reported in this group]	SLOWEST: 48

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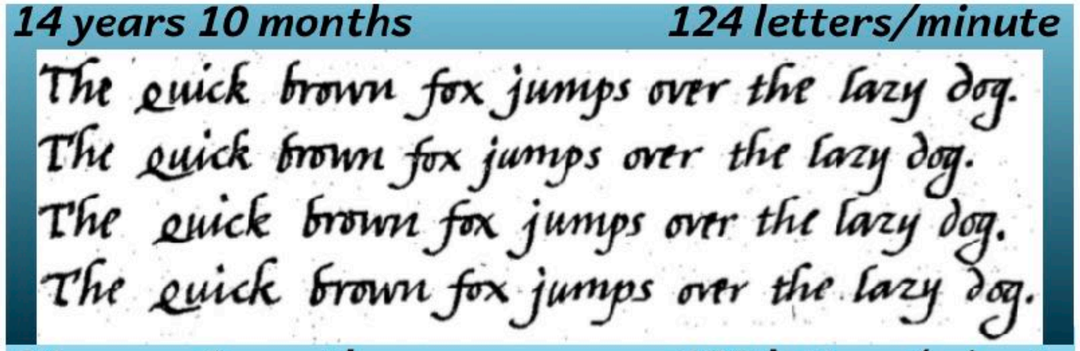
Wood also looked at legibility, though he believed that (unlike speed) this could not be quantified:

"It was a simple matter to get comparative speeds in letters per minute for the various styles, but it is a pity that one cannot measure legibility and scribble. An examination of the papers would convince anyone that italic does not 'break down' to any thing like the same extent as the other styles." (Wood, page 111)

Wood reproduces some of the samples:

14 years 10 months **124 letters/minute**


The quick brown fox jumps over the lazy dog.
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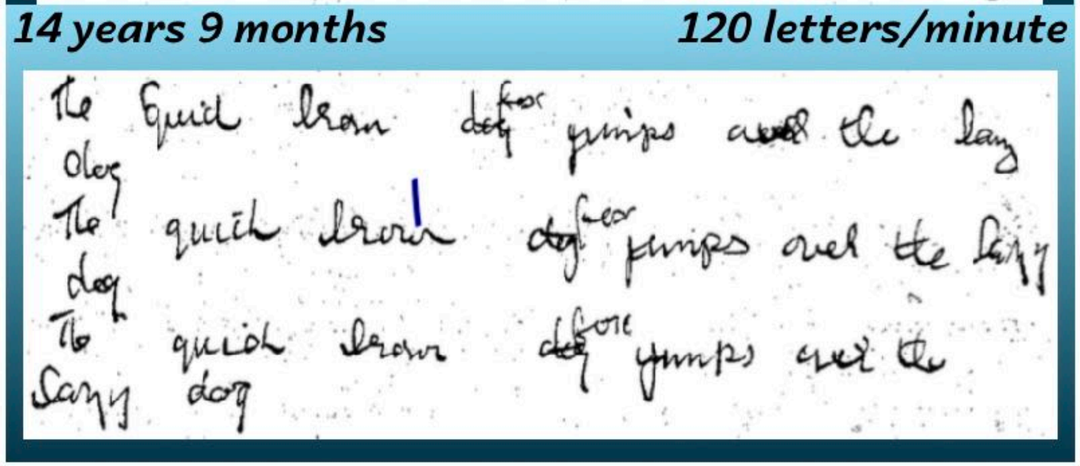
14 years 9 months **120 letters/minute**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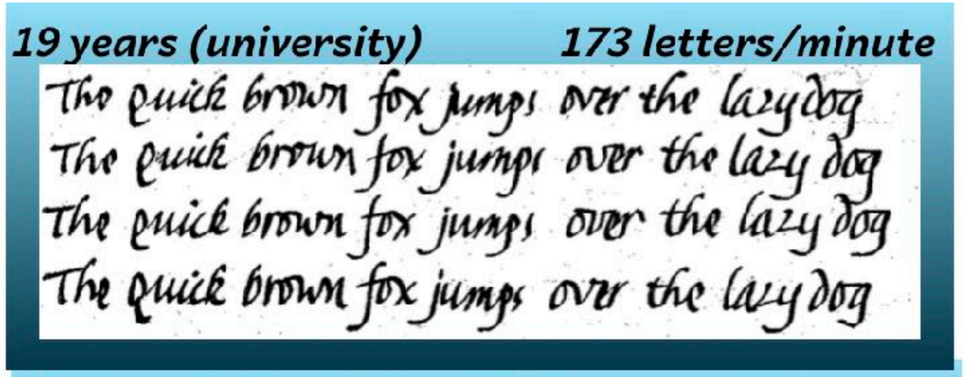
19 years (university) **173 letters/minute**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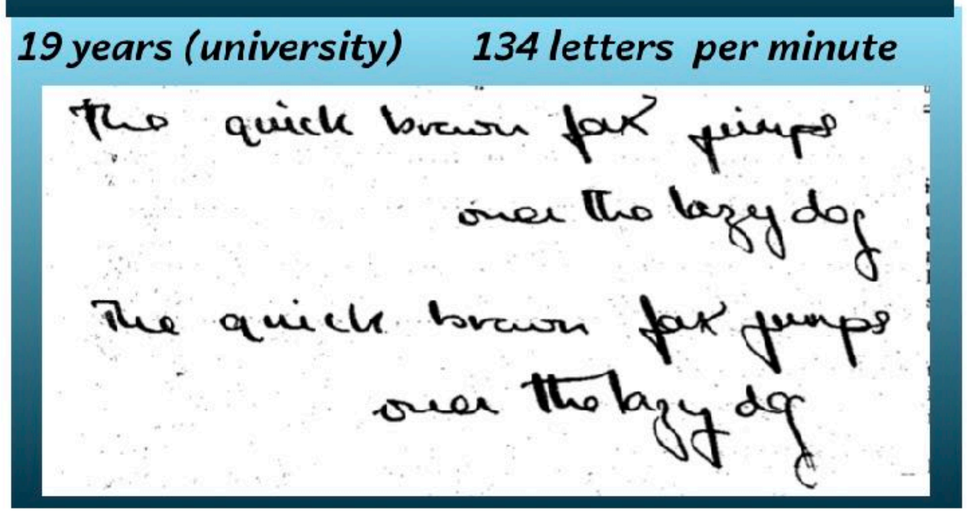

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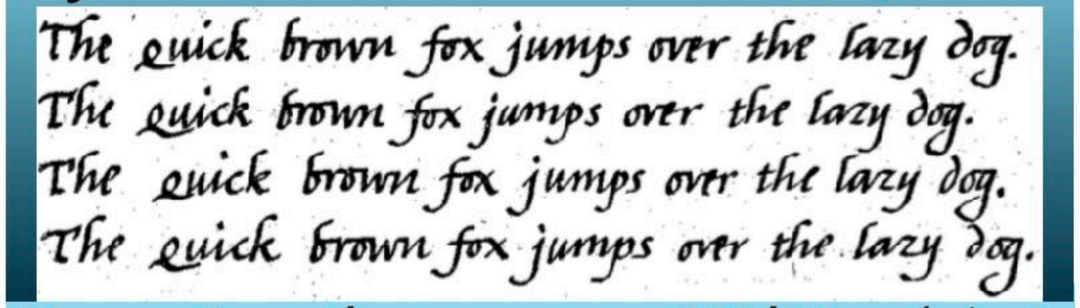
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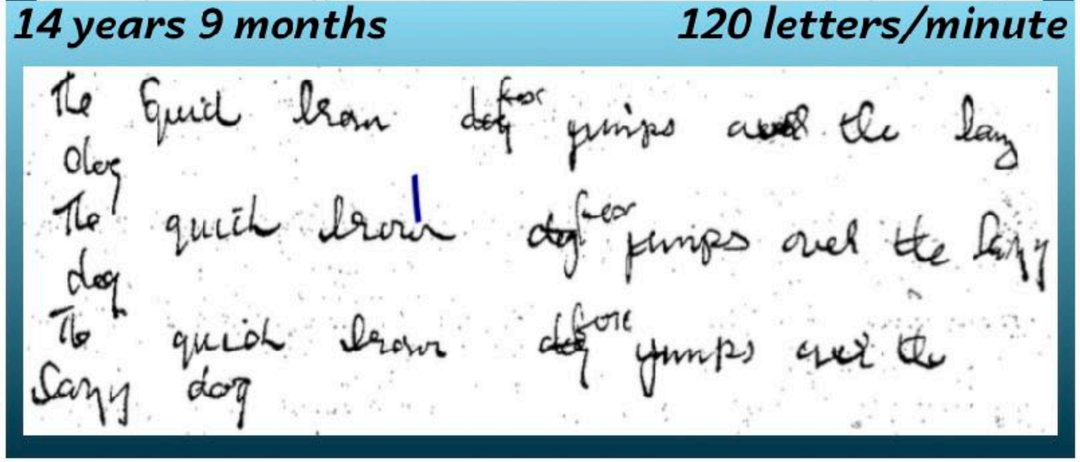

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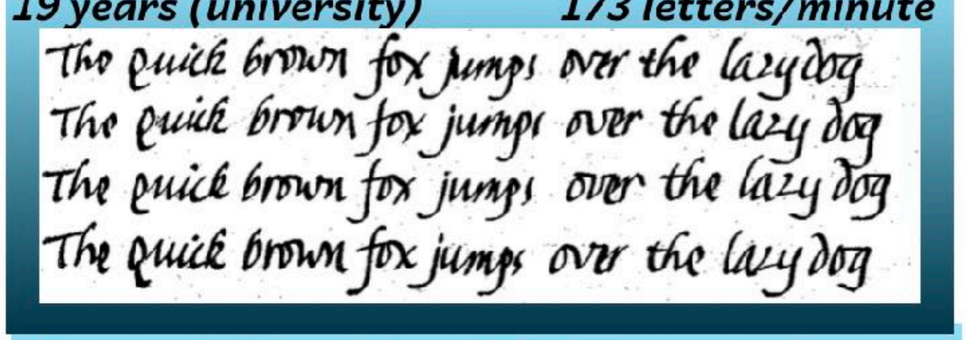
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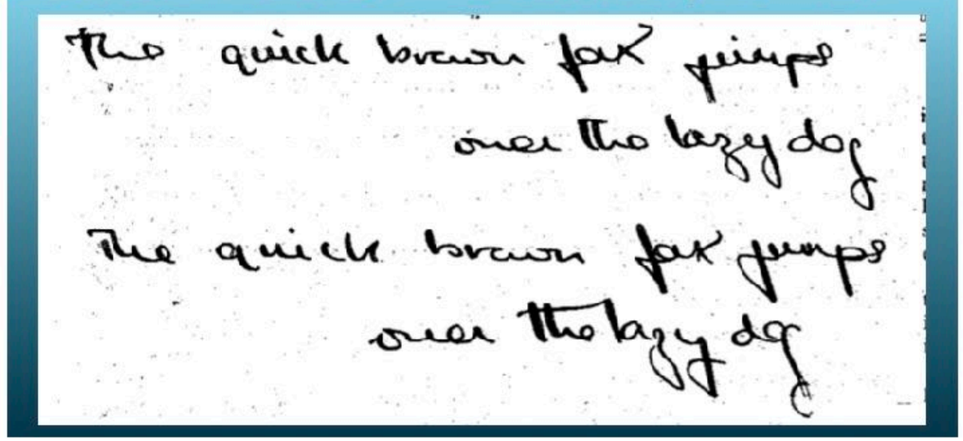

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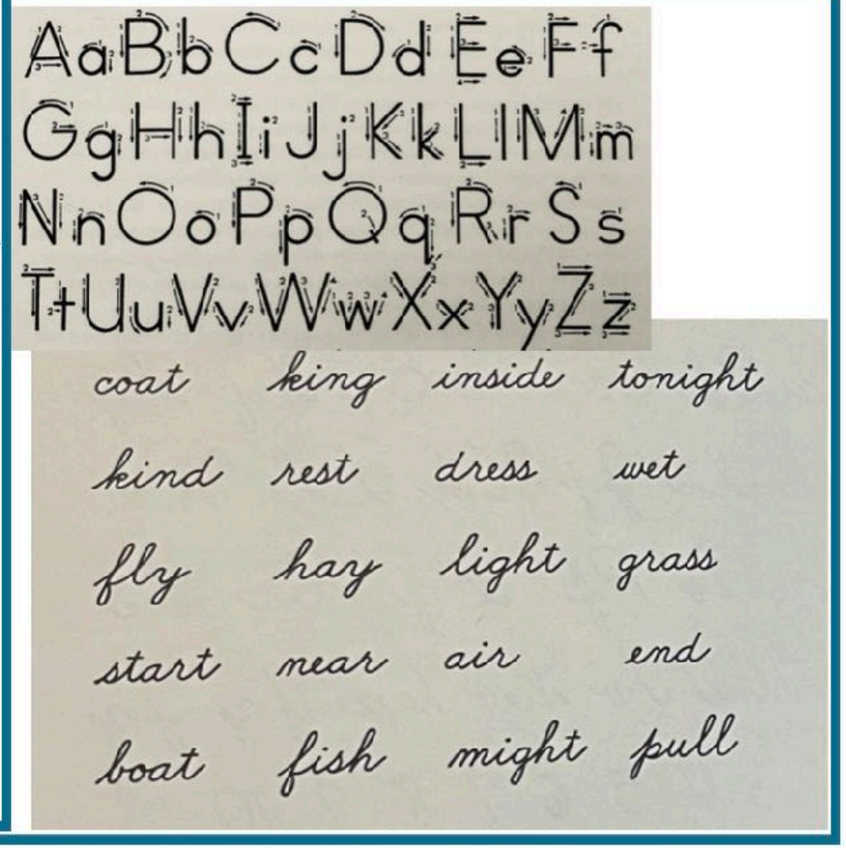
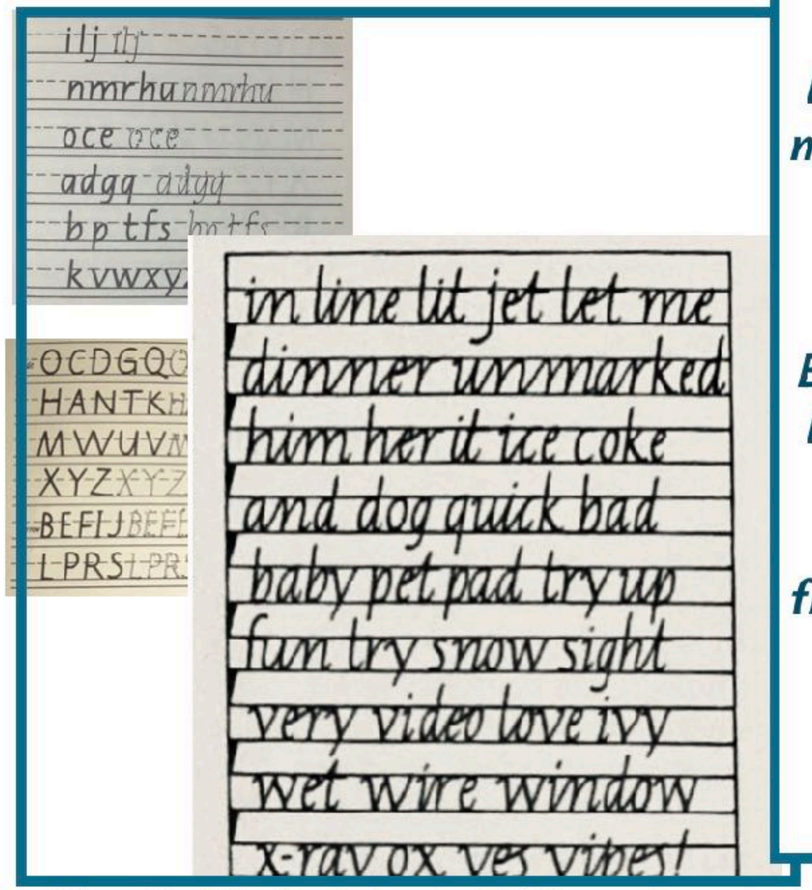
Comparative Research on Italic versus Conventional Forms

Later research began to quantify legibility along with speed

In 1971, Charles Lehman (school superintendent in Tualatin, Oregon) asked 6 first-grade teachers to volunteer to use either a print / cursive program or an italic handwriting program.

Images of print and cursive models (both from the Noble & Noble print / cursive handwriting program) reproduced from Lehman (1976), pages 109 and 110.




in line lit jet let me
dinner unmarked
him her it ice coke
and dog quick bad
baby pet pad try up
fun try snow sight
very video love ivy
wet wire window

Images of italic handwriting models (from Lehman's adaptation of the Beacon italic handwriting program) reproduced from Lehman (1976), pages 111 and 112.

Lehman, Charles L.; Cowles, Donald; Hildreth, Gertrude (1976). Handwriting Models for Schools: Evidence Supporting Italic Handwriting from Comparative Studies of Manuscript, Commercial Cursive, and Italic Models. Portland (Oregon): Alcuin Press. 158 pages.

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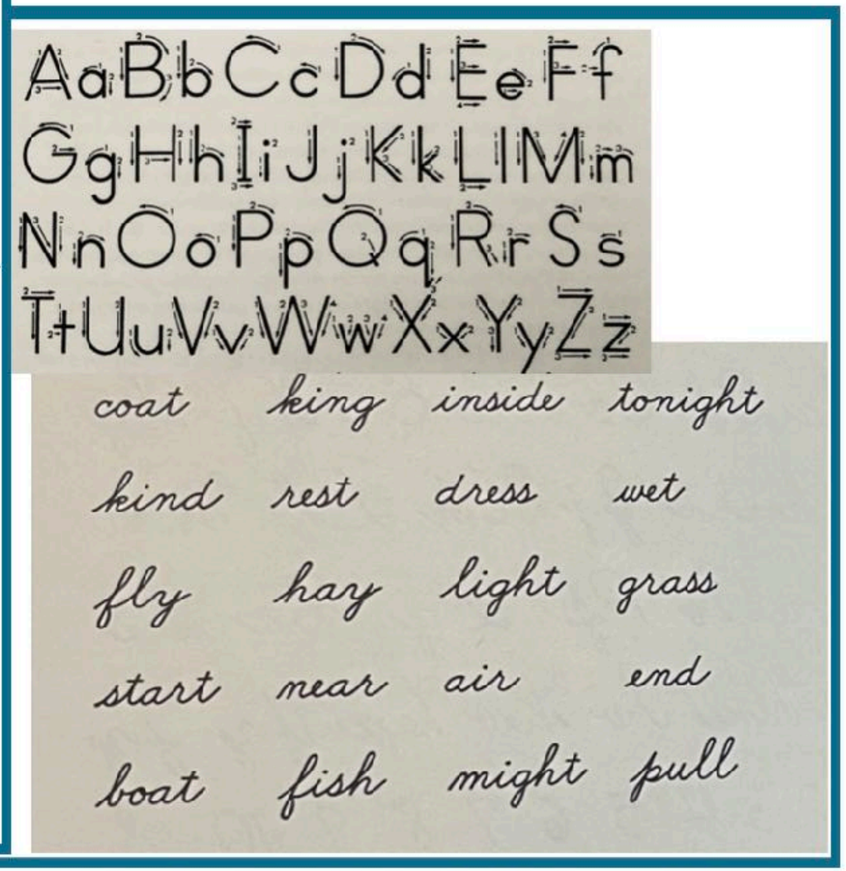
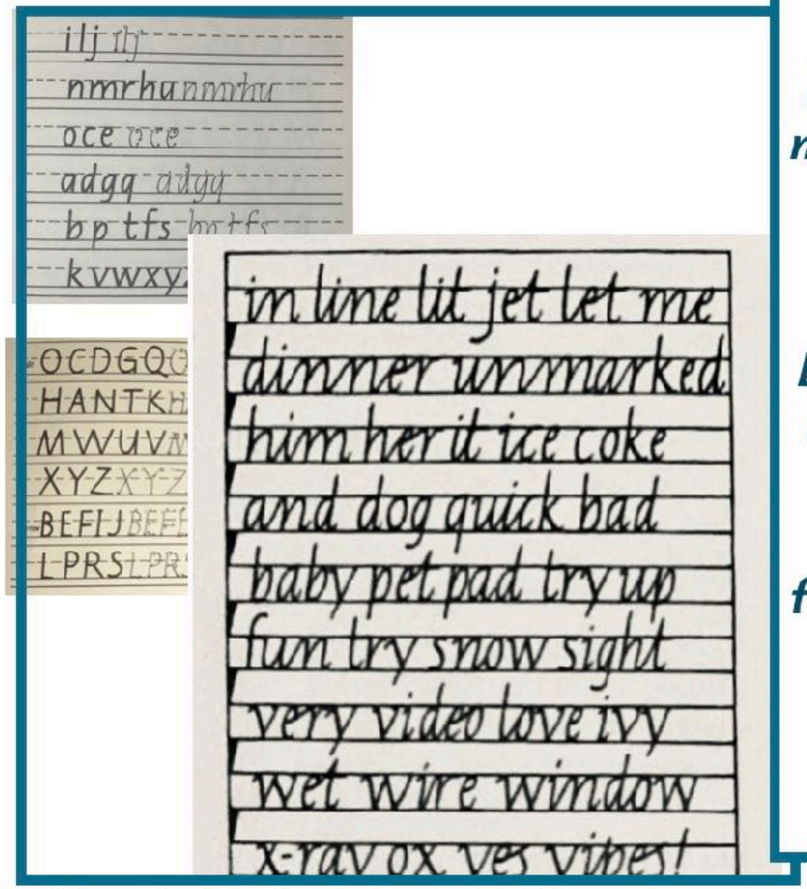
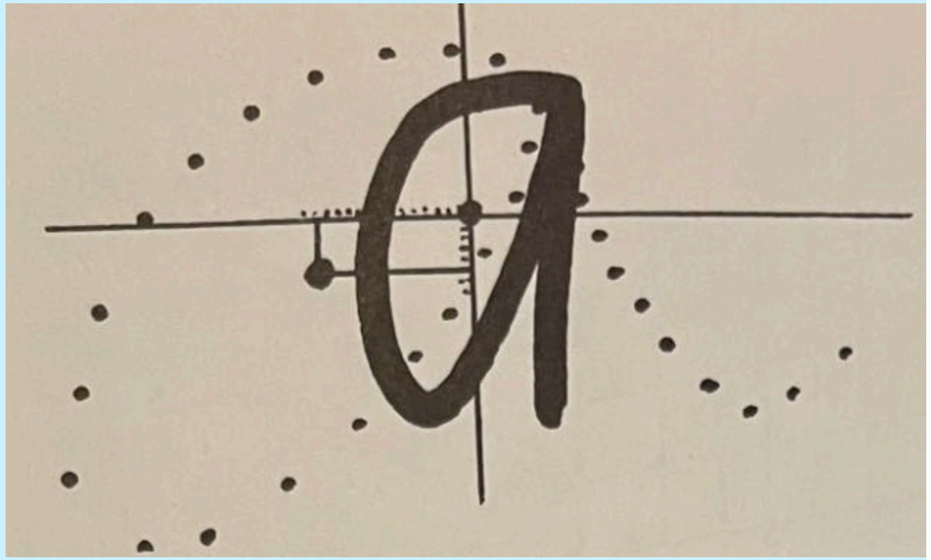



in line lit jet let me
dinner unmarked
him her it ice coke
and dog quick bad
baby pet pad try up
fun try snow sight
very video love ivy
wet wire window

Images of italic handwriting models (from Lehman's adaptation of the Beacon italic handwriting program) reproduced from Lehman (1976), pages 111 and 112.

Lehman, Charles L.; Cowles, Donald; Hildreth, Gertrude (1976). Handwriting Models for Schools: Evidence Supporting Italic Handwriting from Comparative Studies of Manuscript, Commercial Cursive, and Italic Models. Portland (Oregon): Alcuin Press. 158 pages.

Comparative Research on Italic versus Conventional Forms



Three classes were assigned to use each program (conventional or italic), for three years, with student handwriting evaluated twice yearly for legibility, and also evaluated after three years for speed. Lehman quantified speed as letters per minute (using a two-minute writing sample), and quantified legibility as "shape dislocation" (Lehman, page 108) — in other words, as the size in millimeters of the deviations observed (measured at various points on the contours of the letterform) between a letter as written by the student and the same letter as shown in the model that the student had been taught.

This illustration (Lehman, page 104) shows shape dislocations in a letter "a" (dotted line: dots = measured points), visible as each point's distance from the corresponding point on a model letter thick black line: here depicting an italic model).

Measurements were made by two evaluators who centered transparent overlays (pre-printed with model letters of a given form of handwriting) over the corresponding letters in the handwriting of students who had been taught that model), marking significant points, then compiling and analyzing the data by computer (FORTRAN mainframe). Despite what would now be considered primitive technology, this was one of the first (possibly the first) computer-assisted study of handwritten letters.

For legibility evaluations, students copied a sentence that uses all alphabet letters: "The quick brown fox jumps over the lazy dog." For speed evaluation, students were given 2 minutes to copy a short (103-word) Æsop fable.

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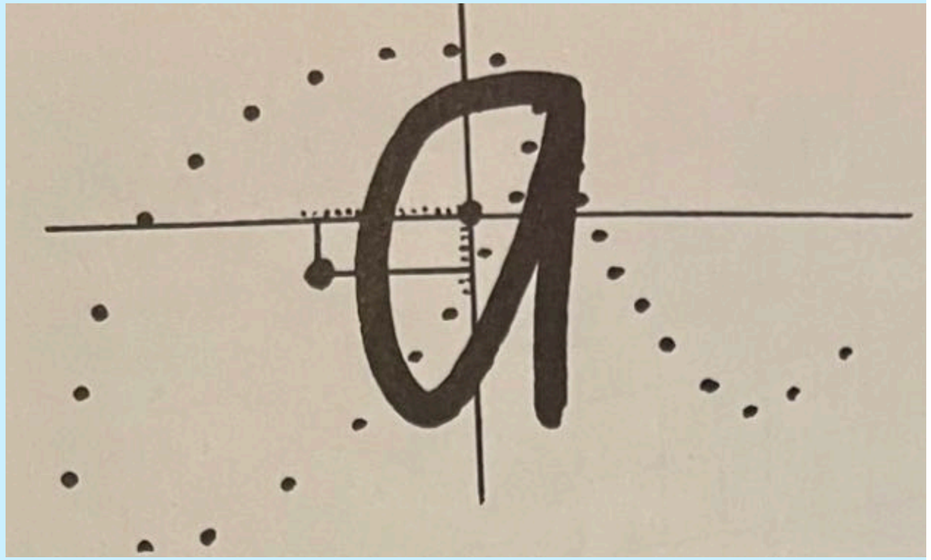

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Comparing the three conventionally trained (print —> cursive***) classes with the three classes trained in*** italic handwriting, ***both evaluators found that the italic-trained students' "shape dislocations" (deviations from whichever model they were being taught and evaluated on) averaged about half the magnitude of those made by conventionally trained students.***

Lehman concluded that this difference indicates that an italic model is easier to comply with and reproduce successfully, so that equal training produces smaller departures from the model (thus, more legible results) with italic models than with conventional models.

He attributed these results partly to the shapes of the model itself (oval, with normally a very slight slant), and partly to the factthat the teaching-sequence for italic models does not rely on drastic letterform changes in order to join letters and increase speed.

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Comparative Research on Speed of Letterforms

SPEED FINDINGS

Speed data formatted from Lehman, page 125

print —> cursive

CLASS	n=	average letters in 2 mins.
1	18	39.8
2	19	53.2
3	17	39.8
		AVERAGE RATE 46.6

italic handwriting

CLASS	n=	average letters in 2 mins.
1	18	51.6
2	26	92.7
3	30	69.6
		AVERAGE RATE: 73.3

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Comparative Research on Legibility of Letterforms

Sassoon (1993) worked with a classroom teacher to evaluate 100 children's ability to read material in 4 common typefonts, and to see which fonts the children most enjoyed reading. Fifty children (ages 8 to 13) had special needs, including learning disabilities; the other fifty (all age 8) were in mainstream education.

Sassoon found the results "unexpected":

BEST LIKED FONTS	BEST READ FONTS
Futura Italic (36%)	Futura Italic (44%)
Times Italic (26%)	*Times Italic (28%)*
Helvetica (20%)	Helvetica (20%)
Times Roman (18%)	Times Roman (10%)

Sassoon's continued research guided the creation of the Sassoon family of fonts (sassoonfont.co.uk) — now widely used, in the UK and elsewhere, for children's literature, textbooks, signage, and more.

Winter came. The trees were bare.
Snow lay on the ground.
Hungry animals were out hunting.
It was hard to find food.
But the dormouse slept safely in his warm nest.

SASSOON PRIMARY: the first font inspired by this research

SASSOON JOINER: a tool for teaching handwriting

ow ow

script for handwriting

Sassoon, R (1993) "Through the eyes of a child: perception and type design." Australian Journal of Remedial Education, 25(3): pages 12-24.: online at https://search.informit.org/loi/aujoreed/group/d1990.y1993.m0 Reprinted in Computers and Typography, Volume 1 (1993: Bristol (UK): Intellect Books, 200 pages

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WHAT ABOUT ... RETENTION?

For any handwriting form, the ultimate test is how well it is retained and applied, after it is learned.

As students must write more, and faster, after the early grades, does their handwriting hold up?

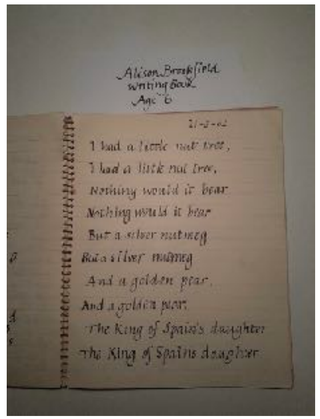
During the teen years, and in adulthood, does previous competence fade out?

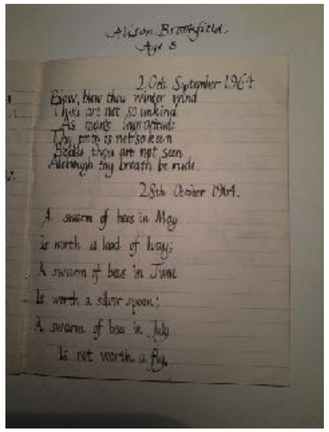
WHAT ABOUT ... RETENTION?

For any handwriting form, the ultimate test is how well it is retained and applied, after it is learned.

A HANDWRITING "GROWTH CHART"

Alison Brookfield, born in the UK in 1956, began learning italic handwriting in the 1960s from her father Ken. After her family moved to Canada in 1965, she maintained her skill, and her handwriting continued to mature.


Alison Brookfield
writing book
Age 6
I had a little nut tree,
I had a little nut tree,
Nothing would it bear
Nothing would it bear
But a silver nutmeg
But a silver nutmeg
And a golden pear.
And a golden pear
The King of Spain's daughter
The King of Spains daughter


Alison Brookfield
Age 8
2 Oct. September 1967
Blow, blow thou winter wind
Thou are not so unkind
As mans ingratitude
Thy tooth is not so keen
Because thou are not seen
Although thy breath be rude
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A swarm of bees in May
Is worth a load of hay;
A swarm of bees in June
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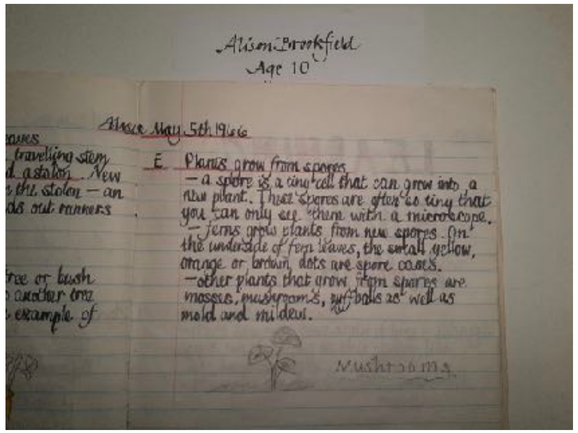
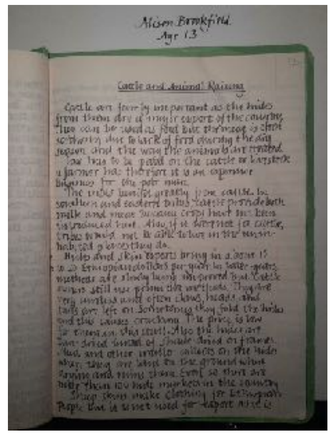
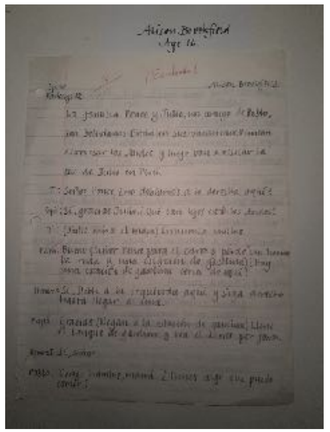
Is not worth a fly.


Alison Brookfield
Age 10
Alaska May 5th 1966
E. Plants grow from spores
— a spore is a tiny cell that can grow into a new plant. Most spores are often so tiny that you can only see them with a microscope.
— ferns grow plants from new spores. On the underside of fern leaves, the small yellow, orange or brown, dots are spore cases.
— other plants that grow from spores are mosses, mushrooms, puffballs as well as mold and mildew.
Mushrooms





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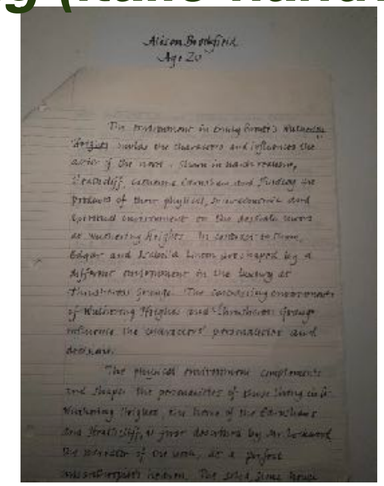

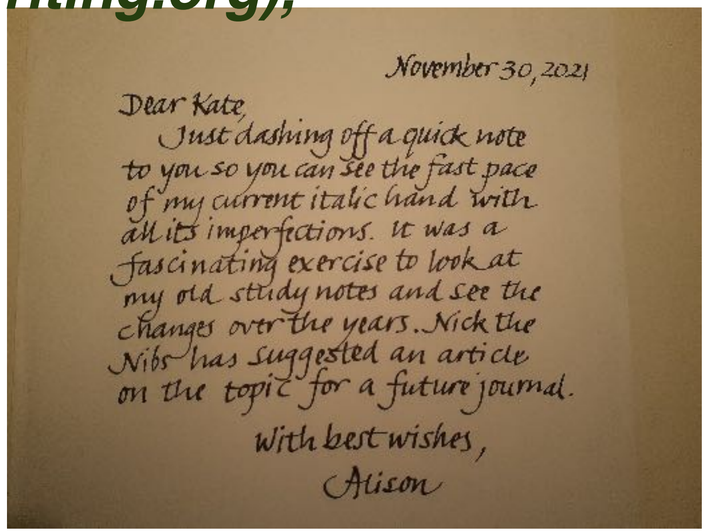
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With best wishes,
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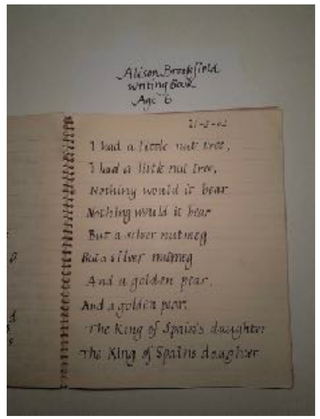
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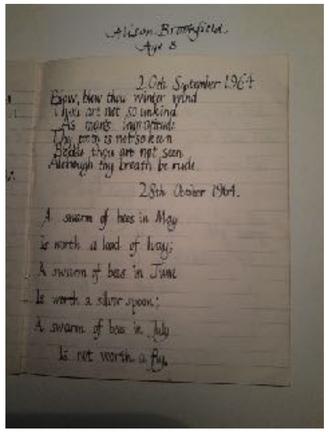
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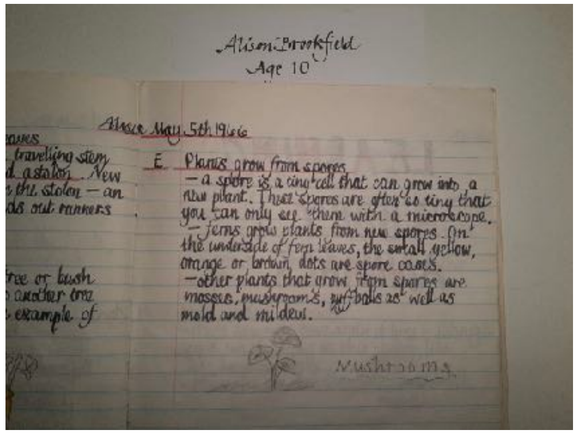
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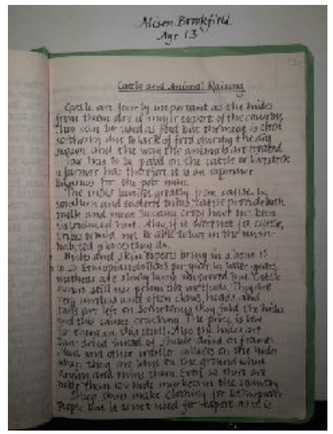

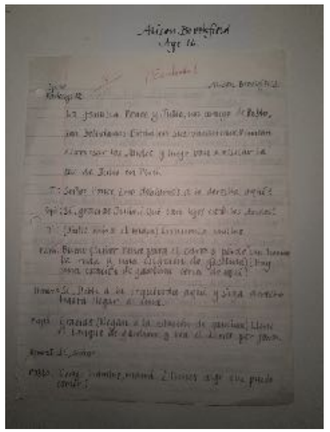

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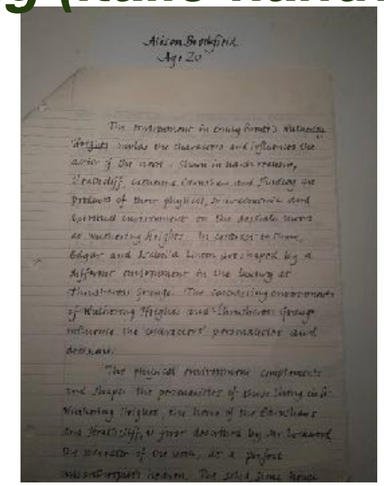

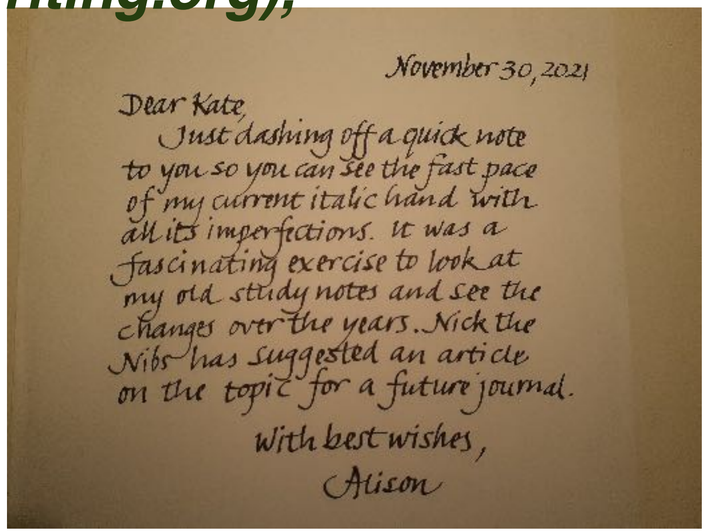
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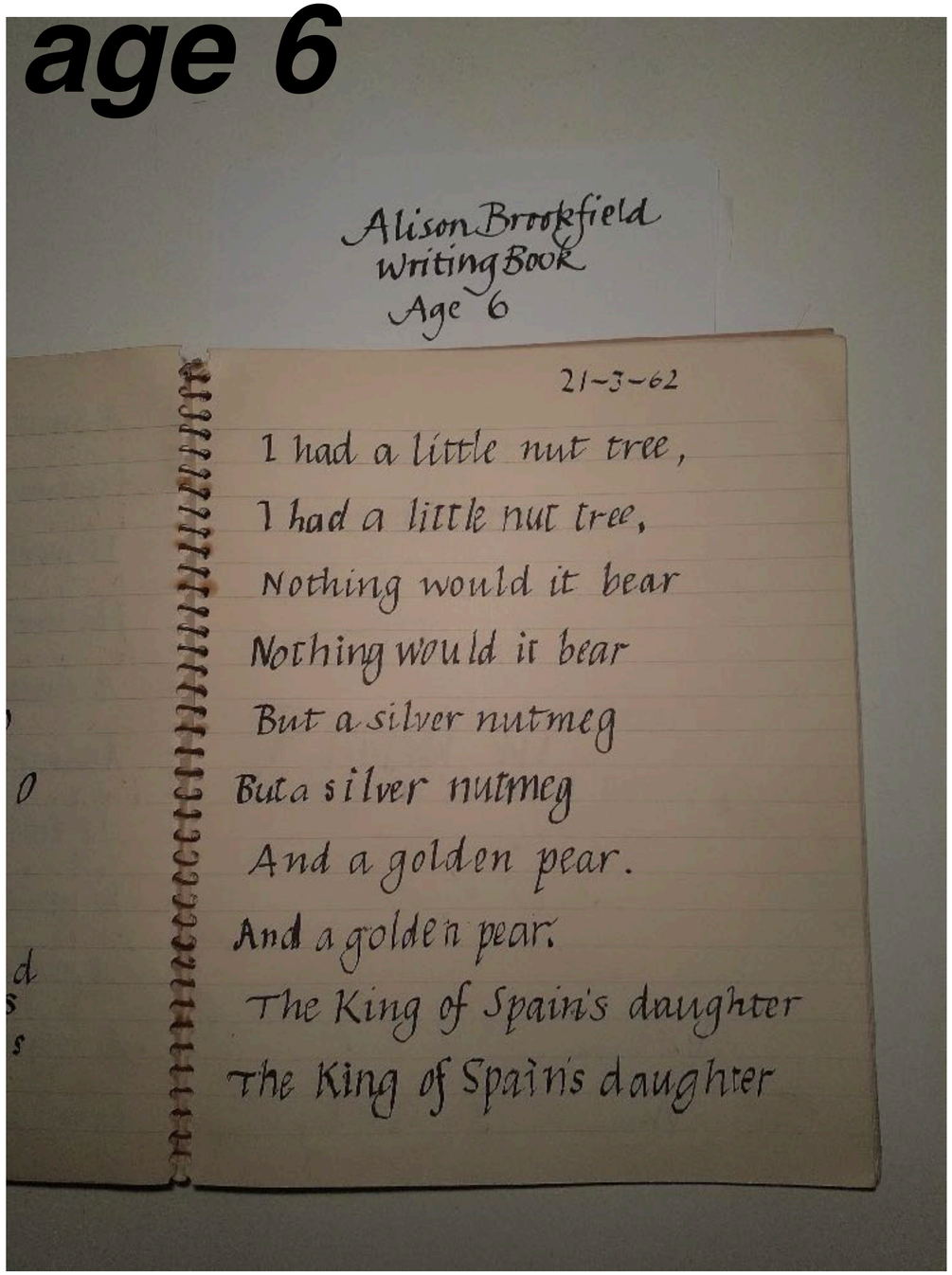

Alison Brookfield
Writing Book
Age 6

21-3-62

I had a little nut tree,
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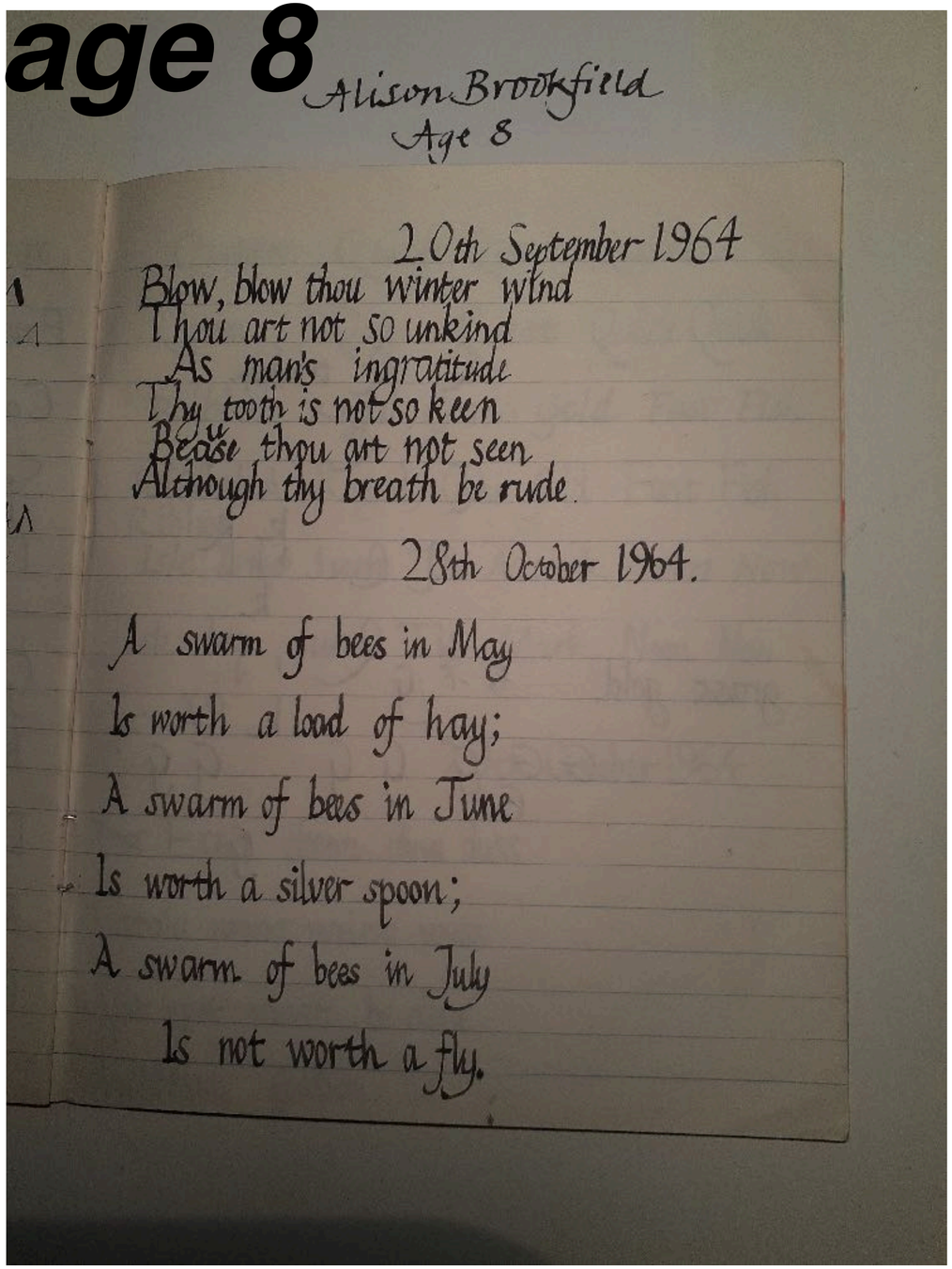
age 8



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Age 8

20th September 1964

Blow, blow thou winter wind
Thou art not so unkind
As man's ingratitude
Thy tooth is not so keen
Because thou art not seen
Although thy breath be rude.

28th October 1964.

A swarm of bees in May
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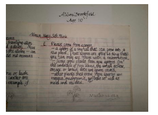

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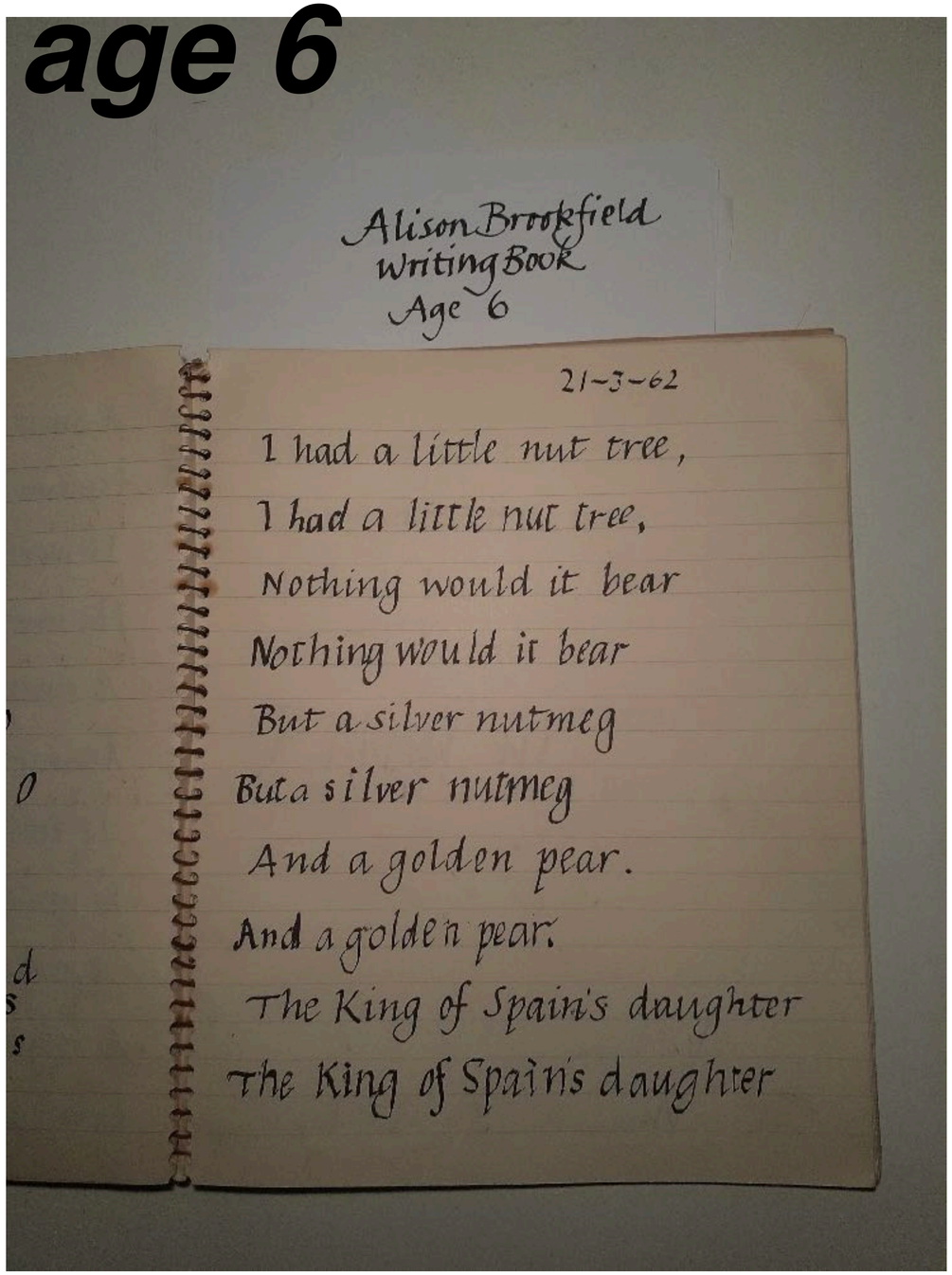

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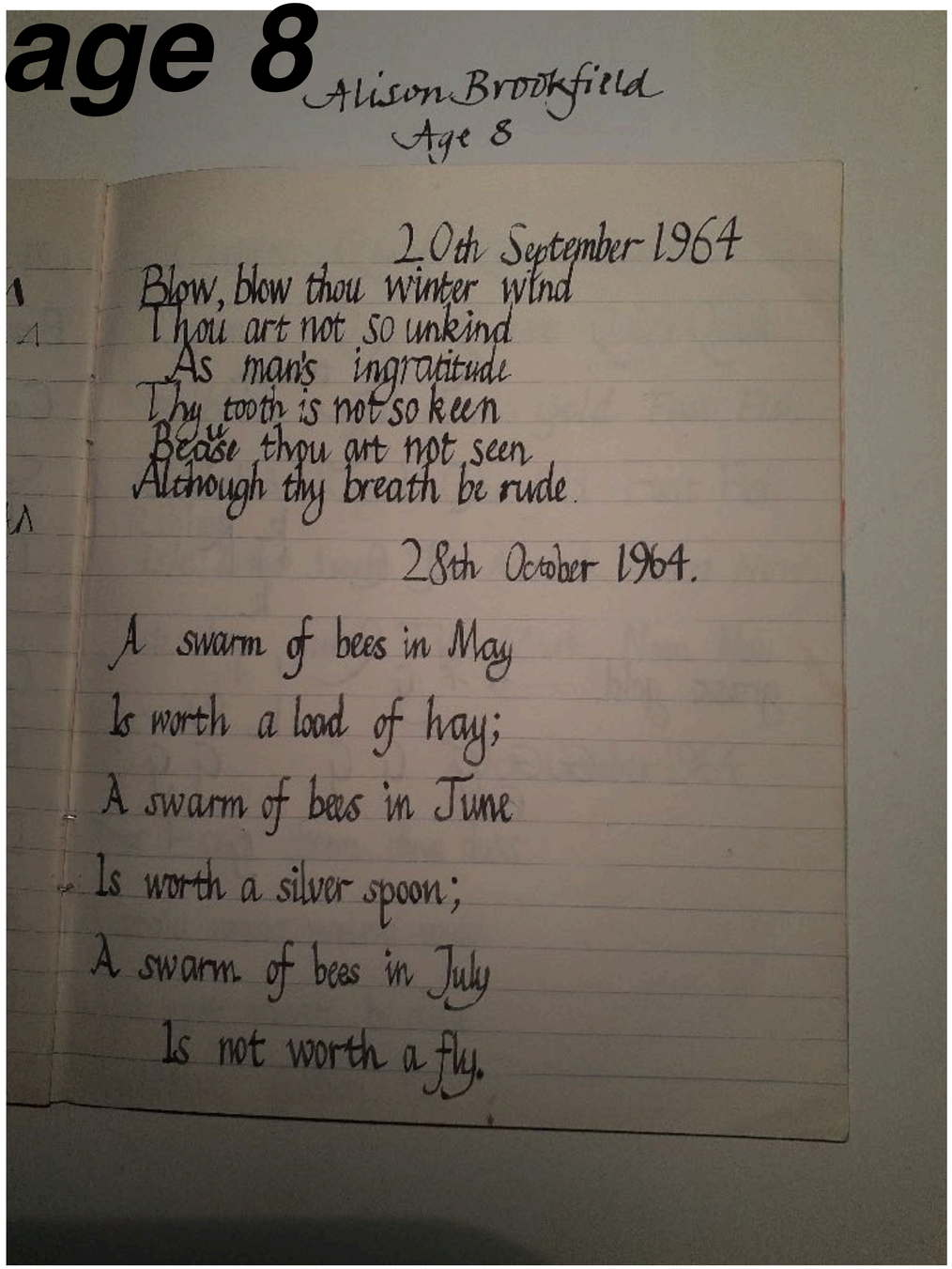

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age 10

Alison Brookfield
Age 10

Alison May 5th 1966

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travelling stem
d a stolon. New
n the stolon — an
ds out runners

tree or bush
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example of

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Mushrooms

November 30, 2021
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With best wishes,
Alison.

age 13

Alison Brookfield
Age 13

12

Cattle and Animal Raising

Cattle are fairly important as the hides from them are a major export of the country. They can be used as food but the meat is often scrawny due to lack of food during the dry season and the way the animals are treated.

Tax has to be paid on the cattle or livestock a farmer has therefore it is an expensive business for the poor man.

The tribes benifit greatly from cattle. In southern and eastern tribes, cattle provide both milk and meat because crops have not been introduced here. Also, if it were not for cattle, tribes would not be able to live in the uninhabited places they do.

Hides and skin exports bring in about 15 to 20 Ethiopian dollars per year. In later years, methods are slowly being improved but cattle owners still use primitive methods. They are very careless and often claws, heads and tails are left on. Sometimes they fold the hides and this causes cracking. The price is low for them in this state. Also the hides are sun-dried instead of shade-dried on frames. Mud and other matter collects on the hides when they are laid on the ground when drying and ruins them. Even so there are more than 100 hide markets in the country.

Sheep skins make clothing for Ethiopian people but it is not used for export as it is

age 16

Alison Brookfield
Age 16

¡Excelente!

Sp. 10 15/15
Package 12

Alison Brookefield

La familia Ponce y Julio, un amigo de Pablo, son bolivianos. Están en sus vacaciones. Piensan atrevesar los Andes y luego van a visitar la tía de Julio en Perú.

J: Señor Ponce, ¿no doblamos a la derecha aquí?

Papá: Sí, gracias Julio. ¿Qué tan lejos están los Andes?

J: (Julio mira el mapa) Cincuenta millas.

Papá: Bueno (Señor Ponce para el carro y pérde un hombre la ruta a una estación de gasolina) ¿Hay una estación de gasolina cerca de aquí?

Hombre: Sí. Doble a la izquierda aquí y siga derecho hasta llegar a una.

Papá: Gracias (llegan a la estación de gasolina) Llene el tanque de gasolina y vea el aceite por favor.

Hombre II: Sí, señor

Pablo: Tengo hambre, mamá. ¿Tienes algo que puedo comer?

age 20

Alison Brookfield
Age 20

The environment in Emily Brontë's Wuthering Heights molds the characters and influences the action of the novel. Shown in harsh realism, Heathcliff, Catherine Earnshaw and Hindley are products of their physical, socio-economic and spiritual environment on the desolate moors at Wuthering Heights. In contrast to them, Edgar and Isabella Linton are shaped by a different environment in the luxury at Thrushcross Grange. The contrasting environments of Wuthering Heights and Thrushcross Grange influence the characters' personalities and decisions.

The physical environment compliments and shapes the personalities of those living in it. Wuthering Heights, the home of the Earnshaws and Heathcliff, is first described by Mr. Lockwood, the narrator of the book, as a perfect misanthropists heaven. The solid, stone house

age 65

November 30, 2021

Dear Kate,

Just dashing off a quick note to you so you can see the fast pace of my current italic hand with all its imperfections. It was a fascinating exercise to look at my old study notes and see the changes over the years. Nick the Nibs has suggested an article on the topic for a future journal.

With best wishes,

Alison

So much for the past — what shall we build for handwriting's future?

Better public & professional understanding of our handwriting and its importance:

- General awareness (among the public and educators) of basic facts on our handwriting
- A willingness to examine some culturally transmitted premises about handwriting styles

Comparative research on the FULL range of variables in handwriting models/styles:

- The "manuscript/cursive" divide excludes many current models and performance types
- Research must now compare individual variables across a continuum (not only extremes)

To be effective for today & tomorrow, models for handwriting performance need to be:

REALISTIC —

- must embrace the handwriting habits of the fastest & most legible handwriters
- must be "do-able" by the users (including teachers and other adults in the real world)

RESEARCH-SUPPORTED —

- models at different educational stages must support (not conflict with) one another

RETAINABLE —

- models must encourage retention (not rejection) after students "age out" of instruction

HANDWRITING THAT SURVIVES

Harmony across handwriting modes:

from start to finish

De-prioritize accident-proneness:

Style? style!

Now it's over to

you:

to question

to research

to reinvent

over to you